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Tactical principles and decisions

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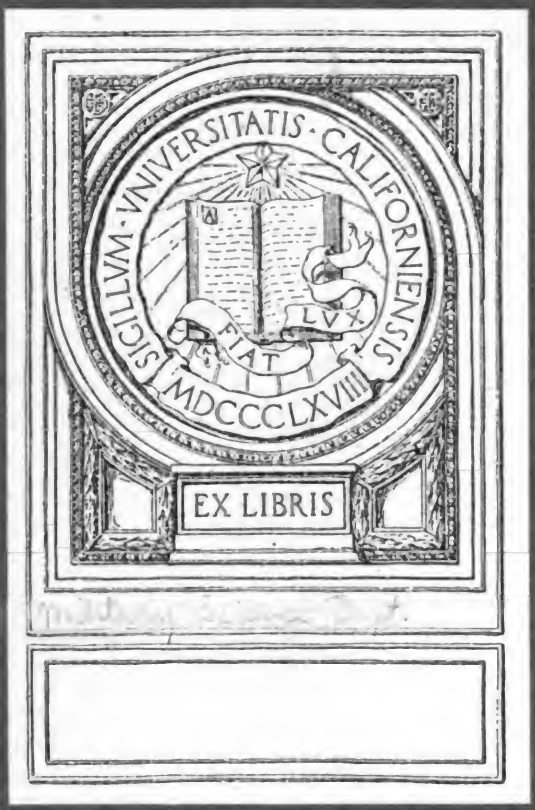
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TACTICAL PRINCIPLES AND DECISIONS

PREPARED BY

U. S. Army

THE SCHOOL OF THE LINE

THE GENERAL SERVICE SCHOOLS

FORT LEAVENWORTH, KANSAS

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INTRODUCTION

"Tactical Principles and Decisions" is the title adopted for one of the most important courses at The School of the Line. The primary purposes of this course are the enunciation of sound tactical principles, the inculcation of a uniform tactical doctrine, facility in appreciating tactical situations and in making sound tactical decisions, and their promulgation by the means of field orders. Since the infantry division and the cavalry division are utilized as the basic units of the course, the application of the enunciated tactical principles to these large organizations is illustrated. In addition, considerable facility in the tactical handling of divisions is secured.

The course embraces the recognized tactical principles of warfare, including stabilized situations, and endeavors to illustrate their application to the infantry division and the cavalry division, operating independently or as a part of a larger force. Effort has been made to illustrate the tactical lessons derived from the World War, and to point out the functions and employment of new weapons (tanks, gas, etc.) with the combined arms.

In the studies presented in this book the student is assumed to be familiar with the tactics and technique of the separate arms and services, i.e., infantry (including machine guns and tanks), artillery, cavalry, air service, engineers, signal troops, sanitary service, etc. The full value will not be derived from the text without such preliminary study.

The applicatory method of instruction has been followed in preparing the studies presented. Certain tactical principles, decisions, orders, etc., are first discussed, following which map problems and solutions are given to illustrate the principles involved. A cursory reading of the text will prove of little benefit. The student desiring to derive real benefit from the lessons presented, should study the text from an analytical viewpoint and so dissect the problems

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and solutions as to appreciate fully not only the principles involved, but also their application to the special situation in question, and the methods followed in framing the orders that promulgate the decision.

The text comprises two volumes. In Volume I *Marches, Halts, Security and Reconnaissance, Action of Covering Forces* and *The Offensive* are discussed. In Volume II *The Defensive, Delaying Actions, Withdrawals, Raids, Convoys, Positions in Readiness, River Crossings, Retreats and Pursuits, Oversea Movements* and *The Cavalry Division* are considered.

The contents of this book, prepared by the instructors indicated, were utilized in the School course of 1919-1920. This book will be used as a text in future courses of the School. Valuable assistance has been rendered by Captains R. E. BEEBE and THOM CATRON in this compilation.

This book has been prepared under the direction of and its publication has been authorized by the Commandant and the Assistant Commandant of The General Service Schools.

H. A. DRUM,
Lieutenant Colonel, Infantry,
Director, The School of the Line.

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TABLE OF CONTENTS

VOLUME I

(See note relative to maps at end of table of contents.)

Page

CHAPTER I—MARCHES 1
(A) Crossing a Defile 1
(B) A Night March 22
(C) A March to Battle 39
(D-1) Change of Direction 51
(D-2) Change of Direction—Map Problem 63

CHAPTER II—HALTS 68
(A) Placing a Division in Camp and Billets 68
With a sketch on page 73 showing billeting areas assigned to the 3d Heavy Artillery and the Division Trains for the night of 15-16 April, 1919.

CHAPTER III—SECURITY AND RECONNAISSANCE 84
(A) Reconnaissance 84
(B-1) Security on the March—Advance Guard 101
(B-2) Security on the March—Flank Guard 134
(B-3) Security on the March—Rear Guard 145
(B-4) Security on the March—Map Problem 165
(C-1) Security at a Halt—An Outpost for the Night 170
With map showing an outpost for the night (in map pocket).
(C-2) Security at a Halt—A March Outpost 200
(C-3) Security at a Halt—An Outpost in a Stabilized Situation 205
(C-4) Security at a Halt—Map Problem 211
With a map showing location of the elements of an outpost (in map pocket).
(D) Reconnaissance in Force 214

CHAPTER IV—ACTION OF COVERING FORCES 222
(A-1) Advance Guards 222
With twelve diagrams illustrating advance guard formations.
(A-2) An Advance Guard Action—Map Problem 238
(A-3) An Advance Guard Action—Map Problem 246
(A-4) An Advance Guard Action—Map Problem 258
(B-1) Flank Guards 265
With one diagram (page 273).
(B-2) Flank Guard Action—Map Problem 277
(B-3) March with a Flank Guard—Map Problem 283
(C-1) Rear Guards 295
(C-2) Rear Guard Action—Map Problem 301
(C-3) Artillery in a Rear Guard Action—Map Problem 312
(C-4) Rear Guard Action—Map Problem 320

CHAPTER V—THE OFFENSIVE 326
(A) General Discussion of the Offensive 326
With nine diagrams.
(B-1) An Attack in a Meeting Engagement 395
(B-2) Meeting Engagement—Map Problem 436
(B-3) Meeting Engagement—Map Problem 443

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(C-1) Attack Against a Prepared Position_____450
With diagram (between pages 464-465) "Artillery in an Attack Against a Prepared Position."
(C-2) Attack Against a Prepared Position—Map Problem____479
(D-1) Attack Against a Defensive Zone_____483
With the following diagrams and maps:
Map showing enemy defensive zone east of Gettysburg, page 484.
Diagrams A, B and C to accompany the artillery brigade field orders (map pocket).
Eleven diagrams illustrating tank attacks (in the text).
Diagram showing tactical routes for tank battalion in an Attack Against a Defensive Zone (map pocket).
(D-2) Attack Against a Defensive Zone—Map Problem_____538
With map showing artillery dispositions, enemy positions and enemy centers of resistance (map pocket).
(E-1) Passage of Lines in Battle_____553
(E-2) Passage of Lines in Battle—Map Problem_____566
With one operations map and one situation map to accompany this problem (in map pocket). Note:—The situation map is erroneously titled: "An Attack After a Passage of Lines."
(F) Attack After a Passage of Lines _____574
(G) A Holding Attack—A Division as Part of a Corps_____582

Maps and Diagrams

In addition to the special maps and diagrams furnished with this volume, as listed in the Table of Contents above, the following general maps will be found in the map pocket:

General Map, Gettysburg-Antietam, Scale 1 inch equals 13 miles.

General Map of Vicinity of Leavenworth, Scale 1 inch equals 19 miles.

Topographical Map, Gettysburg-Antietam, Scale 1 inch equals 1 mile. (Reproduced from 12-inch War Game Map.)

Reproduction from the U. S. Geological Survey Map of Leavenworth and Vicinity, Scale 1:62500.

Note:—In some cases maps and diagrams in the map pocket are printed on both sides of the paper. The great shortage of paper has made this economy necessary.

Additional Maps Required

For the student that desires to make a thorough study of this text, the following additional maps will be required: (These maps may be obtained from the Book Department, General Service Schools, Fort Leavenworth, Kansas, at the prices quoted.)

Geological Survey Maps of Gettysburg and Vicinity, Scale 1:62500; Gettysburg, Fairfield, Ijamsville, Taneytown, Mt. Airy, and Emmitsburg quadrangles. Price 10 cents per quadrangle. The six quadrangles mounted together on muslin for $1.50. For the study of Chapter X-B, Volume II, the following additional quadrangles will be required: Rockville, Seneca and Chambersburg.

Gettysburg-Antietam 3-inch Maps; twelve sheets as follows: Newman, Arendtsville, Hunterstown, New Oxford, Fairfield, Knoxlyn, Gettysburg, Bonneauville, Sabillasville, Emmitsburg, Taneytown and Kingsdale. Price 5 cents a sheet, unmounted; mounted on muslin, 25 cents each; all twelve sheets mounted together on muslin, $3.00.

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TACTICAL PRINCIPLES AND DECISIONS

VOLUME I

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CHAPTER I

Marches

(A) CROSSING A DEFILE

MAJOR R. O. VAN HORN,
Infantry

Maps: General Map of Vicinity of Leavenworth.
Leavenworth, 1:62500, Leavenworth and Vicinity Sheet.

General Situation:

Kansas (Blue) and Missouri (Red) are at war. The Blue main army, which is invading Missouri through Kansas City, has fought its way to the general line Dearborn—Liberty. Its left rests on the Platte River near the last letter "F" in "WOODRUFF" (see general map).

The Red force has retreated in good order, resisting strongly. No attacks have been launched by either side for the past four days.

Special Situation (Blue):

The 101st Blue Division, General A commanding, has been recently organized. Upon completing its training it was assigned to the 5th Corps, which is on the extreme left of the Blue line, and was moved by rail to Fort Leavenworth. On 13 November 1919, this movement had been completed. That night the division was camped as follows:

201st Brigade, in buildings at Fort Leavenworth.
202d Brigade, on the U. S. Penitentiary Reserve.
101st Field Artillery Brigade, in vicinity of Merritt Lake and west of the K. C. W. Electric R. R.
101st Observation Squadron, on Target Range, which has been prepared as a landing field.

Headquarters 101st Division 101st Field Signal Battalion 101st Machine Gun Battalion 101st Engineers 101st Engineer Train 101st Military Police Company	In barracks and camp north of Corral Creek and east of K. C. W. Electric R. R.

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2 MARCHES

101st Ammunition Train 101st Supply Train 101st Sanitary Train	In vicinity of U. S. Penitentiary.

At 7:00 PM, 13 November 1919, General A received the following coded message:

5th Corps,
PLATTE CITY, MO.,
13 Nov 19, 6:00 PM.

CG 101st Div,
By radio.

General situation unchanged. All information indicates enemy intends to hold present line. Hostile units, consisting principally of foot troops with some artillery, strength is unknown but which aggregates less than a division, assembling in vicinity of ST. JOSEPH since 12 Nov 19. These units newly organized and imperfectly trained.

Our patrols report no advance of enemy south of DEARBORN at noon today. Hostile air service active and aggressive. No Blue troops except patrols north and west of the PLATTE RIVER.

Your division, with 1st Sq 10th Cav, now in camp at SOUTH LEAVENWORTH and hereby attached to your command, will move tomorrow, 14 Nov 19, to vicinity of WOODRUFF. You will obtain information of and be prepared to resist any hostile movements from north, at same time holding yourself ready to participate in main action.

The PLATTE CITY—ELDORADO SCHOOL—LEAVENWORTH road will be kept free for corps and army use after 7:00 PM, 14 Nov.

Your division refilling point will be at BEVERLY STATION after 14 Nov 19.

X,
Maj Gen.

Required:

1. An estimate of the situation.
2. The formal orders issued by General A.

NOTE:—Weather clear and cool. Roads as shown on map. Fort Bridge uncompleted and not passable.

Discussion

First Requirement:

Estimate of the situation.

MISSION

General A's mission in its initial phase is clear. It is plainly stated in the direct orders of the corps commander. General A has obtained no information of the enemy that is not known to the corps commander, or that could warrant his doing anything other than to obey his instructions and march to the vicinity of Woodruff on 14 November.

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How this march is to be conducted, what road or roads will be taken, the time of starting and the distribution of the various elements of his command, are the only questions that General A has to decide at present.

The time element is narrowed in choice by the fact that the only available road out of Leavenworth must be cleared of all troops of the 101st Division by 7:00 PM, 14 November.

The distribution of troops in the column should be made not only to insure the safety of the march, but also to place them at their destination in such condition and in proper disposition to carry out, with the least unnecessary hardship, the further instructions given General A, namely, to be prepared to resist any hostile movement from the north or to join in the action of the main armies if needed.

While General A considers now what he will do when he arrives near Woodruff, it would be most unwise to order any actual dispositions, such as camp sites or outposts, so far in advance. Many things might happen that would prevent the column from ever reaching Woodruff. General A's present mission then, and the one immediately before him, is simply to get his division started on its march.

Information of the Enemy

Beyond the fact that the Red army has been giving ground before the advance of the Blue army, General A at present knows little of the enemy. From the fact that troops that have not yet completed their training are assembling at St. Joseph, as well as from the information given him that indications show that the enemy is preparing to make a stand on the present line, General A might deduce that the coming clash will probably be most important, if not decisive. He must have his division in hand, either to take part in the main fight, or to prevent the enemy from reaching the Blue left flank and rear. The fact that Blue patrols have gone over the country south of Dearborn as late as noon today and have found no enemy is important, as the inactivity of the enemy in this direction probably indicates no immediate intention on his part of striking here in force. This view is strengthened by the fact that the left of the Blue army is resting on the Platte

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River, and further by the fact that the nature and confined limits of the terrain between the Platte and the Missouri Rivers from St. Joseph south are disadvantageous for an attack in force. If the Reds at St. Joseph should be found to consist of a force much larger than a division, and if they should advance southwest along the line of the Missouri Pacific Railroad and then eastward against the Blue left flank and rear, the Missouri River would be at their backs and they would have only a limited area in which to maneuver. If defeated, they might easily suffer complete disorganization, if not capture.

To attack the Blue left flank from the north would also be disadvantageous to the Reds. The Platte River limits their field of action, and any such attack would expose their own right flank to General A's command.

In order for a Red attack from the east to be very dangerous, it would have to envelop the Blue left flank. General A's division is available to confront such an attack, and here again the ground greatly favors the Blues, as the Reds would either have to attack astride the Platte River or, at best, to cross it and have it at their backs, leaving a very limited area in which to fight.

Unless the force at St. Joseph is greatly augmented, General A has little fear that it will be able to do more than annoy the Blue army with patrols, principally against his own line of communication.

General A cannot assume that the morale of the enemy is inferior to that of his own troops. While the Reds have fallen back, they are still resisting strongly and have given no signs of any weakening in morale.

The rolling country that will be crossed in the second half of General A's march is favorable to the action of harassing patrols, and some of these may be met tomorrow notwithstanding the fact that the country was reported free of them at noon today. The duty of preventing them from causing any delay to the command falls on the advance guard commander, however, and General A need not consider this, further than to give the latter the necessary troops for the purpose. The fact that the enemy has some artillery would not affect the first half of the march but might

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affect the second half. The advance guard commander must be given some artillery to meet this contingency.

The enemy's air service is active and aggressive. This may prevent General A from obtaining all of the information that he desires through his observation squadron, but it will not deter him from using his air unit to the limit. He will, however, depend in large part on his cavalry for reconnaissance work.

It will be harder to prevent the enemy from obtaining information of his own command. The air squadron is an observation squadron and therefore not particularly suited to combat work. The main Blue force is acting offensively and General A's squadron must conform by going out in search of information.

The unfriendly inhabitants cannot be counted on to give any information of the enemy. Blue patrols working north and west of the Platte River will send in any information that they may gain. For any further knowledge of the enemy, General A will have to depend on his own efforts.

Information of Our Own Troops

The Blue force has been gaining ground in spite of the opposition of the Red army. Its morale must therefore be high.

No large body of the Blues is west or north of the Platte River. This river itself, with its wide flat bottom commanded by bluffs on each side, is a great protection to the Blue left flank.

The 5th Corps, to which General A's command is assigned, holds this part of the line. The location of its extreme left unit is not given, but General A knows enough of the general situation and the location of the troops to enable him to carry out his mission. However, if circumstances permit, he should visit corps headquarters some time tomorrow for the purpose of obtaining the latest information of his own lines and of the enemy. He should also have his covering units locate definitely the extreme left flank of the 5th Corps and maintain connection with it. Corps headquarters is at Platte City, close enough so that General A can visit it in person without being separated from

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his command so far as to make it impossible for him to return in a short time if necessary.

TERRAIN, ROADS, ETC.

When General A reaches Woodruff, his command will be in a suitable position for carrying out the orders to guard against any hostile movement from the north. This town is 8 or 10 miles from the Blue left flank and somewhat north of it. The ridges between the many small creeks in the vicinity furnish good defensive positions in case of necessity, while the numerous roads leading east and north from Woodruff afford quick and easy exit and are favorable for a movement in parallel columns. From the vicinity of Woodruff General A could carry out either one of his probable later missions, namely, to resist a hostile advance from the north or to make a march to join the main Blue army.

There is but one exit from Leavenworth to the east, which is by way of the Terminal Bridge and the one good road that runs eastward about 3½ miles before crossing a good north and south road. The single exit from Leavenworth and the order that it has to be clear of General A's troops by 7:00 PM, 14 November, are determining factors in deciding the hour at which the division must commence its move.

If the road over the Fort Bridge were passable, General A would not have to consider moving all of his troops by the other road, nor would he have to make such an early start. Being about 4 miles shorter, it would also be better for the troops. However, the conditions of each special situation must be taken as they are. General A has available for crossing the Missouri River only the Terminal Bridge at Leavenworth and he must make his dispositions accordingly.

It is of importance to note the nature of a bridge, as the poorer the construction, the longer it takes a given body of troops to cross. A ponton bridge at Leavenworth, for example, would have added fifty per cent to the length of General A's column. The map shows both a road and a railroad crossing the Missouri River on the Terminal Bridge. Therefore, General A believes that by enforcing the strict-

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est road discipline at that point, any check or delay that might be caused by the bridge itself will be avoided. His division will block all other traffic on the bridge while the troops are crossing, and guards must see that the route is cleared.

From a point 3½ miles east of Leavenworth, one road runs north along the foot of the bluffs to B. M. 733 (near Beverly Station), thence up Bee Creek Valley for about 2½ miles, then north via the Hazelwood School and Pleasant Ridge Church to Woodruff, a total distance from the bridge of 15 miles.

Another road that might be selected leads from the 3½ mile point to 964 (near El Dorado School), thence through 933, north via West Platte, to Woodruff. This road is longer than the Bee Creek Valley road by about 1 mile and the country is more hilly. The branch from this road to Woodruff via Tracy is open to the same objections. It also runs closer to the rear of the 5th Corps, which should be avoided as the roads there are more apt to be congested with traffic.

The nearer to Leavenworth that General A can get his column off of the main Leavenworth—Tracy road, the less early he will have to start to clear that road by 7:00 PM.

Insofar as the mission is concerned, any road that leads to the vicinity of Woodruff will serve. If there is any preference it is for the Bee Creek Road, since it runs directly through General A's refilling point, and parts of his trains could stop there as they pass.

General A considers that all of the conditions favor the Bee Creek road and decides to take it, marching via El Dorado School—B. M. 733—Hazelwood School—Pleasant Ridge Church on Woodruff.

In view of the duties that his division may be called upon to perform after it arrives at Woodruff, General A next turns his attention to a consideration of the camping facilities there and the manner in which they lend themselves to proper dispositions under his mission.

To camp west of Bee Creek Valley would bring him closer to his own refilling point and facilitate supply. Only

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two roads lead north from there, however, one through Swamp School and one through Burrus School; also only two roads run eastward across Bee Creek, one at Woodruff and the other about 1½ miles down the creek. Should the Reds by any chance occupy the high ground east of Bee Creek before General A's division crossed it, they could seriously delay any movement in that direction.

A location east of Bee Creek, near Woodruff, with an occupation of the high ground between Owl and Jowler Creeks affords easy egress to the east and north by several roads. Any aggressive movement of General A's command will probably be in one of these two directions. In such a case, time would be gained by being east of Bee Creek. An additional advantage of this area for camping is that the high ground east of the creek will be in General A's hands and no enemy can delay him there. General A, therefore, has in mind to camp for the night east of the Bee Creek Valley in the vicinity of Woodruff, Woodland School and Flintlock Church, with outposts on the high ground to the east and north. His cavalry will operate from the vicinity of Dearborn, covering his left flank and line of communications.

Disposition of Troops in the Column

Cavalry: General A has at his disposal one squadron of cavalry. The march will be a long and hard one, particularly for new troops (from 17 to 18 miles). The infantry should be spared any hardships not absolutely necessary under the tactical situation. Infantry with an advance guard can patrol only to a limited distance from the column if the patrols are expected to return with the information gained before it loses its value. Cavalry is especially fitted for more distant patrolling and some should be assigned to the advance guard for this purpose.

General A desires to gain contact with the enemy north of Dearborn as soon as possible. He hopes thus to learn whether or not the Reds have any designs on his own column, and also whether or not they may be preparing to strike the left flank of the Blue army.

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Cavalry can gain this contact much better and far more quickly than infantry. Aerial observation will also help materially if it can be carried out to such a distance.

Since the enemy is still quite far away, probably from 20 to 30 miles, the cavalry must have plenty of latitude of action. If it is tied to the advance guard it will lose the freedom of movement necessary for operating at such a distance. It is true that some of the enemy's small patrols may have escaped discovery south of Dearborn and may annoy General A's column, but this is a small matter compared to knowing where the enemy's larger forces are and what they are doing. A small detachment of cavalry with the advance guard, the minimum number necessary to reconnoiter distant points along the route and thus save the legs of the infantry, will suffice in this case.

The roads southward from St. Joseph must be observed. On account of their distance away, cavalry will have to perform this duty and perhaps continue on it until a new mission is assigned to the division, which may be several days hence. During this time the cavalry commander would be so far from General A's command that he would have to make his own decisions and carry them out. For these reasons, General A decides that the cavalry should be used as independent cavalry, and not attached to the advance guard.

Advance Guard: General A considers a brigade of infantry too large to be used as advance guard. It is half of his whole infantry force. A battalion of infantry might, and probably would, perform all of the duties of immediate protection on the march and furnish an outpost for the night. However, although only small forces of the enemy are likely to be met during the march, the command must be prepared in case a large force should appear. General A expects to be at Woodruff for at least two days. If a larger force than a battalion, a regiment for example, were out in front, the relief of the outpost would be provided for, or the march could be continued if necessary, without calling upon fresh troops from the main body.

The use of a complete regiment in the advance guard avoids breaking up units and simplifies questions of supply.

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In the case under consideration, it seems wiser to have in the advance guard one regiment of infantry, rather than a larger or smaller unit of that arm. The regiment chosen should be the one that is camped nearest the Terminal Bridge, so as to avoid unnecessary marching and road congestion. General A, therefore, selects the 404th Infantry.

The enemy has artillery, and although it is improbable that it will be used against the column such a contingency must nevertheless be provided against. A certain amount of artillery should therefore be included in the advance guard. A battery might be sufficient, but for the same reasons that govern in deciding upon a regiment of infantry, a battalion of artillery would be better. Artillery battalions ordinarily work with particular infantry regiments in action and the two units get to know and trust each other. It is a wise precaution to take advantage of this in making up advance guards or other detachments when combat is probable and select units that have worked together.

If field trains of the advance guard march at the head of the field train section of the divisional trains, they will not reach their own units until from six and a quarter to nine hours after the units arrive at their camp sites. If a fight were expected, this position of the field trains of the advance guard would be the proper one, but since General A does not anticipate a fight during the march on the 14th they would be more conveniently located if they marched in the rear of the reserves of the advance guard. The exact location, however, will be decided by the advance guard commander and will appear in his order. General A does not interfere in these details, but he does decide whether the field trains of the advance guard troops should or should not be included in the force turned over to the advance guard commander. It is true that, with the advance guard, they may block narrow roads in case other troops have to advance past them, but a serious action is not expected and they can always clear the road by driving into the fields by the time that troops from the rear can come up.

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The road chosen by General A is not a main thoroughfare between important points, and there are a number of bridges along Bee Creek. Repairs may have to be made to the road, or the bridges may have to be strengthened. A company of engineers, marching with the advance guard, would be sufficient for making temporary repairs. It would then go on, and another company at the head of the main body could complete the work.

The local telegraph lines are in hostile country. They are probably not working, or at any rate are subject to interruption. The supply of wire of the division is not sufficient for the maintenance of wire communication with the independent cavalry. A radio set should therefore be with both the cavalry and the advance guard. These sets communicate with each other while on the march by setting up at regular and stated intervals, such as every hour on the hour. This is a normal procedure in radio companies and is done without specific orders.

General A does not anticipate a fight of any importance, and therefore might have all of his sanitary units march in rear. Should the unexpected happen, however, an ambulance company with the advance guard would save many lives. It could occupy road space that would otherwise be unoccupied by troops, and could clear the road by driving off to one side if troops in rear had to pass it. General A therefore thinks it better to place an ambulance company with the advance guard. A field hospital would be useful at Woodruff when an outpost has been established. If it were attached to the advance guard at this time, a later move would be avoided.

It is the duty of the signal troops to repair local lines and establish communication between the different elements of the command during the march, including the observation squadron whenever possible. These troops should not be assigned as an integral part of the advance guard, but can best be employed if they march in the interval between the advance guard and the main body.

The distances that will be maintained between the component units of the advance guard are a matter for the advance guard commander to determine. He is respon-

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sible for the proper conduct of the advance guard and General A leaves these details to him.

General A, however, can figure that the approximate road space that will be occupied by the advance guard will be between 4 and 5 miles. He decides to have sufficient distance between the advance guard and the main body so that checks to the former will not affect the latter, and also so that there will be plenty of space for the main body to deploy unharassed by hostile fire if the enemy is encountered. General A also realizes that under conditions as they exist, every addition to the total length of his column will require the hour of starting to be set forward a corresponding time in order to clear the road by 7:00 PM. A distance of 1 mile, including the space occupied by the field signal battalion, satisfies these conditions, and General A adopts it.

Main Body: When considering the composition of the main body, General A wants his infantry and light artillery well forward, the latter protected by the former, and all trains that are not immediately necessary grouped in rear of all combatant troops.

The motorized heavy artillery and motorized units of the sanitary train can travel better if grouped and placed in rear of all animal-drawn vehicles of the main body, with sufficient available space on the road to permit them to advance by jumps at the best running rate of their motors. In the present case, however, General A cannot afford any space in his column for this purpose. The heavy artillery and other motor-drawn units will have to maintain the uniform rate of the whole command, at least as far as Beverly Station. Therefore one place near the rear of the column is as good as another until that point is reached. From Beverly Station on, if the field trains drop back, there will be room to allow space for these motor-drawn units to move by bounds, and it would be well to assign them the rearmost positions in the main body now.

The 101st Observation Squadron has in its present position a convenient landing field, and is also near enough to the scene of its future activities to reach it easily. No

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other place near Woodruff from which the squadron could work is known at present.

It is customary, when a division is attached to a corps, that the division observation squadron will operate from the corps landing field, but under the orders of the division commander. However, this disposition of the 101st Observation Squadron has not yet been ordered by higher authority, so General A decides to let it remain where it is and operate from there for the present. The special work of the squadron during the march should be to reach St. Joseph and verify, if possible, the truth of the report that the enemy is in that vicinity and, if so, in what numbers. The enemy's air service is active and aggressive and General A's observation squadron may have to fight to get through. The more planes used in this attempt, the better would be the prospect of a successful penetration. General A might order the whole squadron to perform this duty, but since the squadron commander is more familiar with the details of air tactics, it is better to tell him just what is desired and to let him devise the best means of how to accomplish it.

Trains: The field trains and the division trains must get off of the Leavenworth—Platte City road as soon as possible, in order to clear that road by 7:00 PM. This can be done if they follow the main body without distance and are kept well in hand and closed up. Since the trains have a prescribed organization, with an officer designated as commander of trains, no other commander need be specified in this case.

The field trains will follow the troops to Woodruff, and may be allowed to fall back and increase their distance from the main body after Beverly Station is passed if necessary. The division trains can drop out of the column after they reach the vicinity of the division refilling point at Beverly Station.

The military police can best be used to insure the free movement of the column at the most important points, which are the Terminal Bridge and its approaches.

DECISION

General A therefore decides to march on Woodruff, starting sufficiently early on the morning of 14 November

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to enable his division to clear the Leavenworth—Platte City road by 7:00 PM; to march via the Aurora School—B. M. 773—Hazelwood School—Pleasant Ridge Church—Woodruff road; to use his cavalry as independent cavalry with radio communication to the advance guard; to have the 404th Infantry, the 1st Battalion, 101st Light Artillery, Company A, 101st Engineers, the 104th Ambulance Company, the 104th Field Hospital, and one platoon of Troop A, 10th Cavalry, with all of their field trains, in the advance guard; to have the main body follow the advance guard at 1 mile; to have the trains follow the main body without distance; to have the 101st Observation Squadron work from its present location; and to use the 101st Military Police Company for the purpose of regulating traffic at the Terminal Bridge and its approaches.

Computation of Time

With this decision made, General A turns over to his chief of staff and the operations section the task of working out the details. This work will take some time. So as not to have the order reach the troops after they have gone to sleep, he directs that a warning order be sent at once with information that the formal march order will follow later.

It will be well to go over in detail how the computation of time is made. After the road space of each unit has been worked out, the length of time that it will take each one to pass a given point, marching at the usual rate of 2½ miles per hour including halts, must be borne in mind.

The independent cavalry is at a variable distance away and need not be considered in the computation of time except to insure that it will be out of the way and clear of the bridge before the advance guard starts to cross.

The fact that the cavalry must be ahead of all other troops does not necessarily indicate that it will start earliest. It can delay, sometimes even until after the infantry has started, and by increasing its gait and taking a different route reach its designated place ahead of the slower moving foot troops. However, in the present case, there is only one road and the cavalry will have to start early in order to clear the bridge for the advance guard.

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THE ADVANCE GUARD

(Showing road space occupied)

Point: 1 platoon infantry and 1 platoon cavalry (including distance)	230	yards
Distance	300	
Advance party: 1 company infantry (less 1 platoon)	95	
Distance	600	
Support: 1 battalion infantry (less 1 company and field train)	520	
Total to rear of support	1745	
	(or 20 min.)	
Distance	880	
Total to head of reserve	2625	
	(or 29 min.)	

RESERVE

Division headquarters and radio section (less 2d echelon)	300	yards
1 regiment infantry (less 1 battalion and field train)	2320	
1 battalion light artillery (less field train)	1650	
1 company engineers (less field train)	225	
Field train, 1 regiment infantry	905	
Field train, 1 battalion light artillery	270	
Field train, 1 company engineers	50	
1 ambulance company	395	
1 field hospital	220	
Length of reserve	6535	
	(3¾ miles) . . . 1 hour, 29 min.	
Total to tail of reserve	8960	
	(5 miles) . . . 2 hours.	
Distance, including one field signal battalion (less detachments)	1760	
Total to head of main body	10,720	
	(6 miles . . . 2 hours, 26 min.	

MAIN BODY

1 company engineers (less field train)	225	yards
1 brigade infantry (less 1 regiment and field train)	4765	
1 brigade artillery (less 1 regiment heavy artillery, 1 battalion light artillery, and less combat and field trains)	3165	
1 brigade infantry (less field train)	7730	
1 machine gun battalion (motor) (less field train)	1010	
1 regiment engineers (less 2 companies and field train)	1235	
Combat trains, 1 brigade artillery (less 1 battalion light artillery and 1 regiment heavy artillery)	2665	
1 regiment heavy artillery (less field train)	5100	
1 sanitary train (less 1 ambulance company and 1 field hospital)	1850	
Length of main body	27945	
	(15¾ miles) . . . 6 hours, 21 min.	
Total to tail of main body	38465	
	(21¾ miles) . . . 8 hours, 44 min.	

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TRAINS

Field trains section:		
Division headquarters field train	135	yards
Field train, 1 brigade infantry (less 1 regiment)	1160	
Field train, 1 brigade artillery (less 1 battalion light artillery and 1 regiment heavy artillery)	1170	
Field train, 1 brigade infantry	2065	
Field train, 1 machine gun battalion (motor)	100	
Field train, 1 regiment engineers (less one company)	285	
Field train, 1 regiment heavy artillery	620	
Field train, 1 sanitary train (less 1 field hospital and 1 ambulance company)	225	
Total length of field trains section	57C0	
(3¼ miles)	1 hour, 18	min.
Division trains section:		
Division headquarters (2d echelon)	225	
Engineer train	790	
Sanitary train	5440	
Supply train	4090	
Train headquarters and military police (less personnel military police)	115	
Length of division trains section	10660	
(6 miles)	2 hours, 26	min.

TIME OF STARTING

Having worked out the lengths of the various parts of the command, the latest hour at which a start can be made under the conditions of the problem can be determined. Measured in marching time, the distance from the point of the infantry advance guard to the tail of the main body is 8 hours and 44 minutes. To this must be added 1 hour for the noon halt, which gives 9 hours and 44 minutes. The distance from the head to the tail of the divisional trains is 2 hours and 26 minutes, that of the field trains 1 hour and 18 minutes, a total of 3 hours and 44 minutes, or 3 hours and 50 minutes for full measure.

It will take 1 hour and 24 minutes for either troops or trains to reach the point on the Leavenworth—Platte City road at which the column turns north (3½ miles from the Terminal Bridge). It will therefore take the trains 3 hours and 50 minutes plus 1 hour and 24 minutes, that is 5 hours and 14 minutes, to clear the main road. The latest hour at which the head of the trains can start from the Terminal Bridge is thus seen to be 5 hours and 14 minutes before 7:00 PM, that is at 1:46 PM. Allowing for no distance between the tail of the main body and the trains, the point of the infantry advance guard must start from the

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Terminal Bridge 9 hours and 44 minutes before 1:46 PM, that is at 4:02 AM. This allows no leeway for delays or blocks except for the six minutes added to the length of the trains. Since the division is a new one and this is its first march in the presence of the enemy, General A feels that he must provide a certain amount of leeway, even if he has to start earlier than he would otherwise like to. He feels that 40 minutes would be the minimum time that he should allow. In order to provide this, the advance guard must start 40 minutes before 4:02 AM, that is at 3:22 AM, and the head of the main body, 2 hours and 26 minutes later, that is at 5:48 AM.

The cavalry must get across the Terminal Bridge before 3:22 AM, and every precaution must be taken to prevent any block on the road or at the bridge. The western end of the bridge is most conveniently situated for designation as the initial point. This is the first march for the troops under present conditions and but a small allowance has been made for possible delays. General A therefore thinks it wise to make sure that everything will move smoothly, not only by designating the initial point and the hour at which the advance guard and the main body will start, but also the hours at which each separate unit of the main body and each section of the division trains will move out.

The initial point is inside the city limits of Leavenworth, and there is a possibiliity that the wrong streets may be taken by units in reaching it, which would cause congestion, especially in the vicinity of the bridge. To avoid this the march of each large unit through town should be observed and guarded. This can be done by the military police and must be supervised by a general staff officer who can give orders in the name of the division commander in case of need.

In working out the time element, it must be remembered that the rate of march of 2½ miles per hour, or 80 yards per minute, includes the 10 minutes' halt during each hour. When considering marches of less than an hour, the 88 yard per minute scale must be used.

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Second Requirement:

The formal orders submitted by the chief of staff for approval are as follows (the hour of issue is not inserted until the division commander has approved them):

WARNING ORDER

101st Div,
FORT LEAVENWORTH, KANSAS,
13 Nov 19, 7:20 PM.

FIELD ORDERS }
No 1 }

This division will be prepared to move by marching early tomorrow morning, 14 Nov 19. The first units to start will be the 1st Sq 1st Cav, 404th Inf, 1st Bn 101st LA, Co A 101st Engrs, 101st Amb Co, 101st F Hosp, and 101st F Sig Bn. Formal order for march will issue later.

By command of Maj Gen X:

Y,
C of S.

Distribution

CG 5th Corps
Div Staff
CO Ind Cav
CO Adv Gd
CO Tns
CO's all brigs
CO F Sig Bn
CO 101st Obsn Sq
CO 101st MP Co
CO 101st Amb Co
CO 101st F Hosp
CO 101st Sn Tn

MARCH ORDER

101st Div,
FORT LEAVENWORTH, KANSAS,
13 Nov 19, 9:00 PM.

FIELD ORDERS }
No 2 }

Maps: General Map, Vicinity of Leavenworth, 1"=15 miles.
Geological Survey Map, Leavenworth and Vicinity, 1:62500.

Troops

(a) Independent Cavalry
Major D
1st Sq 10th Cav (less 1 plat)
1 rad sec

(b) Advance Guard
Colonel C
404th Inf
1 plat Troop A 10th Cav
1st Bn 101st LA
Co A 101st Engrs
1 rad sec
104th Amb Co
104th F Hosp

1. The main armies are opposing each other on the general line DEARBORN—LIBERTY. Our left, 5th Corps, rests on PLATTE RIVER near last letter "F" in WOODRUFF. (See general map.) Newly organized and imperfectly trained hostile units consisting principally of foot troops with some artillery, strength unknown but less than a division, assembling in vicinity of ST. JOSEPH since 12 Nov 19. Enemy's aviation active. No signs of enemy south of DEARBORN at noon 13 Nov 19.
2. This division will march to vicinity of WOODRUFF.
3. (a) The independent cavalry will clear western end of LEAVENWORTH TERMINAL BRIDGE by

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(c) Main Body
In order of march:
Co B 101st Engrs (less F Tn)
202d Brig (less 404th Inf and F Tn)
101st FA Brig (less 103d HvA, 1st Bn 101st LA and C and F Tn)
201st Brig (less F Tn)
C Tn 101st FA Brig (less 1st Bn 101st LA, and 103d HvA)
103d HvA (less F Tn)
101st Sn Tn (less F Tn, 104th Amb Co and 104th F Hosp Co)

(d) 101st F Sig Bn (less dets)

3:22 AM, 14 Nov 19 and proceed to vicinity of DEARBORN. All roads leading south from ST. JOSEPH will be observed. Prompt information of any hostile movement from the north will be gained. Patrols will cover left flank of our line of communications. Touch with left of our 5th Corps will be gained and maintained.

(b) The advance guard, starting from western end of TERMINAL BRIDGE not earlier than 3:22 AM, 14 Nov 19 will clear bridge at 5:22 AM and march via AURORA SCHOOL—B.M. 733 (near BEVERLY STATION) — HAZELWOOD SCHOOL — PLEASANT RIDGE CHURCH—WOODRUFF road. Radio connection with independent cavalry will be maintained. Connection with left flank of our 5th Corps will be maintained by patrols.

(c) The main body will start from western end of TERMINAL BRIDGE at 5:46 AM and follow advance guard at 1 mile. Head of each unit will start from western end of bridge as follows: Co B 101st Engrs at 5:46 AM, 202d Brig at 5:49 AM, 101st FA Brig at 6:54 AM, 201st Brig at 7:37 AM, 103d MG Bn at 9:23 AM, 101st Engrs at 9:37 AM, C Tn 101st FA Brig at 9:54 AM, 101st Sn Tn at 10:30 AM, 103d HvA at 10:55 AM.

(d) The 101st F Sig Bn (less dets) will march in the interval between the advance guard and main body. Radio sets will be furnished independent cavalry and advance guard.

(e) The 101st Obsn Sq will operate from present landing field, reconnoiter vicinity of ST. JOSEPH and to the south, obtain information of the enemy's strength and movements.

(f) The 101st MP Co will supervise traffic on TERMINAL BRIDGE and its approaches, prevent congestion and keep column moving.

(x) Halts will be made for 10 minutes each hour, commencing on the hour. The noon halt will be from 12 noon until 1:00 PM.

4. All field trains will assemble at their present camp sites at 11:30 AM, 14 Nov 19 when they will come under the CO Tns for orders. Marching in same order as troops in the column, they will start from western end of TERMINAL BRIDGE at 1:05 PM and follow main body without distance.

Division trains will march in following order: 2d echelon of Div Hq, 101st Engr Tn, 101st Am Tn, 101st Sup Tn, 101st Tn Hq and 101st MP Co. Division trains will start from western end of TERMINAL BRIDGE at 2:23 PM and will follow field trains without distance to vicinity of BEVERLY STATION, where they will close up and halt for the night.

Division refilling point at BEVERLY STATION after 14 Nov 19.

5. Messages to western end of TERMINAL BRIDGE until 9:00 AM, after that hour to head of support of advance guard.

By command of Maj Gen X,

Y,
C of S.

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Distribution:

CG 5th Corps	CO F Sig Bn
Div Staff	CO 101st Obsn Sq
CO Ind Cav	CO 101st MP Co
CO Adv Gd	CO 101st Amb Co
CO Tns	CO 101st F Hosp
CO's all brigs	CO 101st Sn Tn

Discussion of the Orders as Issued

Troops in camp go to bed early. If General A issued no warning order, but only the formal order at 9:00 PM, the men in some organizations that have to make certain preparations would have to be awakened. It is better to issue a general warning order so that preparations may be finished before the men go to bed.

A considerable length of time, two hours, has been allowed for the purpose of figuring out all of the details that General A desires to have appear in the march order. It would probably take all of this time to frame, print, sign, and have the order ready for distribution.

The order assigns a field hospital to the advance guard. This is not generally the case, but in the present instance it is deemed wise, as the advance guard may do outpost duty for two or three days and may therefore require a place to which to send wounded or sick, particularly since the map shows Woodruff to be a very small village. The field hospital also takes up but little road space (220 yards) and, as stated before, occupies this space in a part of the column that would otherwise be unoccupied by troops.

Ordinarily it would be enough to put into an order the time of starting of the principal units of the column, such as the advance guard and the main body. In the present case, the division has never before marched in the presence of the enemy, the initial point is in a town where congestion on the streets may occur, and the orders to clear the main road by 7:00 PM are positive. If there should be a delay of more than 40 minutes, these orders could not be complied with, so General A has provided against any mistakes by giving the time at which each unit will start from the initial point. He might even have gone further and have figured the times at which the organizations should start from their camp sites, but the initial point is well known, cannot be mistaken,

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and the determination of the time necessary to reach it can safely be left to the subordinate commanders concerned.

The military police company assures the continuous movement of the column across the bridge, and also gives the general staff officer there sufficient personnel to enforce the division commander's orders at that point without detaching men from other units for the purpose.

No definite place to which to march is specified, but only a general locality is given. General A will know better later in the day just where he desires to camp his troops. It would therefore be premature to include such details in this order.

The field signal battalion is ordered to march in the interval between the advance guard and the main body. Its various duties are such that it cannot march as a complete unit, and detachments will be working all along the route repairing local telephone lines, setting up radio sets, and performing other work of like nature. Where the battalion is assigned a position that causes it to take up no road space that would be occupied by troops, this space is not figured but is included in the distance that has been ordered.

The orders provide that the field trains will be grouped and follow after all of the combat troops. No fight is imminent and the comfort of the troops is given every consideration, and one way of doing this is to provide that they shall have their baggage during the coming night.

The division trains will not be needed any closer than Beverly Station unless something unforeseen happens. From that point they can come up to the camp of the division when needed. They are also in a convenient position to the divisional refilling point. They are therefore ordered to close up and halt at Beverly Station and go into camp. If they were not ordered to close up, they might halt on the road and await orders, in which case their tail would run into the main Leavenworth—Platte City road, and the orders of the corps commander relative to clearing that road would not have been carried out.

General A might have ordered his command post to jump from Terminal Bridge to Beverly Station, and then

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to Woodruff. However, the point of the advance guard will be only 22 minutes from Woodruff at 9:00 AM, when General A leaves Terminal Bridge. By fixing his place at the head of the support of the advance guard, General A practically fixes it at Woodruff and avoids any complications if anything should happen to prevent the advance guard from reaching that point. Ordinarily a fixed command post that is moved by jumps is preferable to one that is given a place in a moving column. In the present case, as has been said, Woodruff is chosen, since General A will have a lot of work to do at that point, such as deciding upon camp sites, outpost positions and similar matters, and the sooner he gets there the better.

(B) A NIGHT MARCH FOR FLANK PROTECTION—MAP PROBLEM

MAJOR R. O. VAN HORN,
Infantry

Maps: General Map, Gettysburg-Antietam, 1″=10 miles.
Pennsylvania-Maryland Geological Survey Map, 1:62500, Taneytown and Emmitsburg Quadrangles.

General Situation:

Virginia (Red) and Maryland (Blue) are at war. Pennsylvania is neutral but the sympathies of the people are with the Blues.

The line of the Potomac River as far west as the Monocacy River is strongly held by the Blues. All attempts of the Red army to cross have been repulsed.

A Red offensive that drove eastward from Harper's Ferry and Shepherdstown has forced the Blue right back to the line of the Monocacy, and the northernmost elements of the opposing armies confront each other near Woodsboro.

Special Situation (Blue):

The 1st Blue Division, General A, commanding, has been detached from the reserve of the 1st Army, near Baltimore, and placed under the orders of the 3d Army, occupying the Monocacy front. The division has been as-

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signed to the 5th Corps, which is on the extreme right of the 3d Army, and was moved by rail to Westminster.

The rail move was completed by 4:00 PM, 24 November, 1919, at which time the units of the division were encamped as follows:

1st Brigade, along creek that crosses Uniontown Road, about 1 mile east of Uniontown.
The 1st Battalion, 1st Infantry, is on outpost duty along the general line Uniontown—Tyrone.
2d Brigade along Meadow Branch, east of Hahn's Mill.
1st Field Artillery Brigade (less 3d Heavy Artillery), along Meadow Branch west of Hahn's Mill.
3d Heavy Artillery, along Frizzelburg—Hahn's Mill road.
1st Machine Gun Battalion at Frizzelburg.
1st Engineers, along Meadow Branch, east of 2d Brigade.
1st Observation Squadron, on 5th Corps landing field at Libertytown.
1st Sanitary Train, along road that leads south from Libertytown.
1st Military Police Company at Westminster.
1st Engineer Train and 1st Ambulance Train at Fountain Valley.
Train Headquarters and 1st Supply Train at Dunkard Church.
Division Headquarters and 1st Field Signal Battalion at Hahn's Mill.

All other trains with units.

At 5:30 PM, 24 November, 1919, General A, having reported at 5th Corps headquarters at Libertytown, was handed the following order:

5th Corps,
LIBERTYTOWN, MD.,
24 Nov 19, 5:30 PM.

FIELD ORDERS }
No — }

Maps: General Map, Gettysburg-Antietam, 1"=10 miles.
Pennsylvania-Maryland Geological Survey Map, 1:62500, Taneytown and Emmitsburg Quadrangles.

1. A strong general attack by the enemy on front of 3d Army from FREDERICK south during night 23-24 Nov and morning 24 Nov 19 was unable to gain ground.
   Patrols found EMMITSBURG and THURMONT free of enemy at 3:00 PM today. Hostile patrols prevented reconnaissance west of CREAGERSTOWN. Road from FREDERICK through YELLOW SPRINGS to near LEWISTOWN filled with hostile infantry and artillery units and transportation moving north at dusk (5:00 PM) today.
   The 5th Corps cavalry will be reconstituted 26 Nov 19, when it will operate on north flank of corps.
2. The 3d Army remains in its position and holds defensively the line of the MONOCACY.
3. The 1st Div will move without delay to protect right flank of 5th Corps. Any movement of enemy from direction of EMMITSBURG and THURMONT will be reported. In case of attack enemy will be

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held west of the MONOCACY. The 1st Sq 1st Cav, now at KEYMAR, is hereby attached to the 1st Div for duty.

4. Refilling point for 1st Div will remain at WESTMINSTER until further orders.
5. Messages to LIBERTYTOWN.

By command of Maj Gen X,

Y,
C of S.

General A was confidentially informed by the corps commander that three or four fresh Blue divisions would arrive in rear of the 5th Corps within two days, when a general Blue offensive against the Red left would take place, with every prospect of success.

Intelligence reports locate the enemy's extreme left at Utica Mills. All but two of the enemy's divisions near the Monocacy front have been identified in line.

The right of the line of the 5th Corps rests on Chestnut Hill, with outposts along the Monocacy as far north as Le Gore Bridge, inclusive.

Required:

1. Estimate of the situation.
2. The formal order issued by General A.

NOTE:—Monocacy River unfordable except as shown on map. Weather clear and cold, roads hard. Sunrise, 6:45 AM; sunset, 4:40 PM.

An Approved Solution

First Requirement:

MISSION

General A's orders are to protect the right flank of the 5th Corps, observe and report any movement of the enemy from Emmitsburg or Thurmont and, in case of attack, to hold the enemy west of the Monocacy River.

The enemy cannot seriously endanger the right flank of the 5th Corps until he succeeds in crossing the Monocacy. Close observation of both Thurmont and Emmitsburg as well as of all other approaches to the Monocacy from the west is necessary for two reasons. First, it is required by the orders of the corps commander; second, it will give General A information of a hostile advance or attempt to cross the Monocacy, and give him time to take up the proper dispositions.

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If the enemy attempts to cross the Monocacy, General A must at least occupy the heights east of the river that command the point of crossing before or by the time that the enemy appears in force. This cannot be done from the present location of the division near Hahn's Mill, from 11 to 13 miles away. General A must first move his command to some point from which it can quickly reach any threatened point.

While General A's mission is specifically to hold the enemy west of the Monocacy, that is merely a means to the broader mission of protecting the flank of the 5th Corps. If the enemy should get across, General A's force must still be able to interpose itself between the hostile troops and the flank of the corps and protect the latter to the full extent of the staying power of his troops. Therefore, any position selected to oppose a crossing of the river must also be considered from this point of view.

General A has the choice of four general localities to which to move his division for the purpose of carrying out his mission. These are: first, west of the Monocacy, along the Rocky Ridge—Appolds spur; second, Clearview School or any point further north; third, vicinity of Bruceville; and fourth, vicinity of Ladiesburg.

These will be considered in turn and referred to by number.

First—Any position selected by General A west of the Monocacy would put that unfordable river at his back. In case of defeat he might lose his entire force if unsupported. Also, being so near the enemy he might not have sufficient warning or time to enable him to move his command to meet a hostile attack that developed at some point other than the one actually occupied.

On the other hand, General A's knowledge of the intended Blue offensive makes it important that he have a foothold on the west bank of the Monocacy for use as a bridgehead by the time that the operation is to start. The heights under consideration are most suitable for this purpose. General A would not attempt to occupy them with his whole division at present, as he might be defeated there before the fresh Blue divisions arrive. If the Reds

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should not attack before the 1st Division reaches the river, and if they have not moved north of the line Thurmont—Appolds, General A would occupy the spur in question with a small force. It would be his intention to hold it until the fresh Blue divisions arrived within supporting distance, when it would be safe and proper for his entire division to cross. It would be premature to decide definitely on this course of action, but the benefits of holding the spur when the Blue offense is launched must be kept in mind.

Second—Clearview School and its vicinity are rather far away from the important crossings of the Monocacy between Miller's Bridge and Keyesville. A hostile attack from the direction of Thurmont might develop in force before sufficient troops could be brought up from Clearview School to check it. General A therefore considers that this point, or other points farther north, would be unsuitable, since, if the enemy succeeded in an attack near Miller's Bridge he could interpose himself between General A's command and the right flank of the 5th Corps.

Third—A location north of Big Pipe Creek and west of Sharretts, in the vicinity of Bruceville, offers the advantage of good roads that lead directly to all crossings of the Monocacy south of Piney Creek, and is centrally located with respect to them. The heights that overlook these crossings are from 2 to 3½ miles away from them. The longer distance is to the heights east of Miller's Bridge, which crossing can also be commanded from the heights near Franklin School, but 2½ miles from Bruceville.

Bruceville is too far from the crossings at and north of Bridgeport to enable the troops to reach them before an enemy marching from Emmitsburg could get there. If Bruceville is chosen as a location for the bulk of the division, General A must then send a special force to the vicinity of these northern crossings to discover and delay any attack made there. Whether or not General A would allow the bulk of his force to be drawn that far away from the flank of the 5th Corps would depend upon the completeness of the information of the enemy that he had when that question came up for consideration. Should the enemy by any chance cross at Bridgeport or farther north, General

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A could march from Bruceville and oppose the advance toward the Blue right flank for the full distance of 10 miles or more that lies between the two places.

General A does not have to consider the terrain south of Miller's Bridge since there are no crossings between there and Le Gore Bridge, which is protected by the 5th Corps itself.

Fourth—From a position near Ladiesburg the crossings at Miller's Bridge and a little farther north could be adequately protected, but to meet an attempt at the bridges still farther north, Double Pipe Creek would have to be crossed. The direct road to these crossings through Detour is rather exposed, and the only other roads run near Bruceville.

Considering the advantages and disadvantages of these various locations as regards the general defense of the most important part of the sector, from Miller's Bridge to Piney Creek, General A decides that he can best carry out this defense from the centrally located position near Bruceville, with its direct roads to all crossings.

Information of the Enemy

General A knows that the left flank of the Red army is at Utica Mills. Since the Reds have just failed in a general attack on the Monocacy front, their morale must have suffered. It is rather unlikely that they will make another similar attempt without reinforcements.

Thurmont and Emmitsburg were free of the enemy at 3:00 PM. The heavy movement of troops and transportation toward Lewistown may indicate a new attempt to cross the Monocacy north of the present Blue positions. The report indicated about 10 miles of troops, but gave no information about how many more hostile troops were in the vicinity and ready to move. Artillery and infantry units were reported, but no cavalry. The movement was discovered at dusk and is probably the commencement of a night movement. The amount of the movement indicates the presence of considerably more than a single brigade, and the troops seen may be one of the two unidentified hostile divisions. General A must therefore

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consider the possibility of encountering one or both of these on his front.

This movement may be only an extension of the Red left flank caused by information obtained of the presence and movements of General A's command. It may, however, be the commencement of an aggressive movement against the Blue right. The latter supposition would be more harmful to the Blues and must therefore be kept in view.

The hostile column was moving north, and at 5:00 PM its head was near Lewistown. It could reach the vicinity of Loys and the valley of Owens Creek by 8:00 PM of the same day, 24 November 1919. It could then continue eastward without stopping, or could halt and concentrate in the valleys of Owens Creek and Beaver Branch and be able to launch an attack on the bridges to the east at daybreak the next day, 25 November 1919.

The section of the river that would thus be threatened is the most dangerous one to General A at present. If the enemy should continue northward past the line Thurmont—Appolds, however, every mile more that he marched would result in time gained for General A.

General A must consider the most immediate danger, that is that the enemy may continue marching east from Loys tonight. If this movement were unopposed, the heights east of the Monocacy could be occupied by the enemy at daylight in sufficient force to require an attack by General A's division to dislodge him. If such an attack were unsuccessful the right flank of the 5th Corps would be unprotected and General A would have failed in his mission. He must therefore make every effort to get these heights. The hour is late and this can be accomplished only by a night march that is started as soon as possible. Such a march will also be comparatively safe from discovery by hostile airplanes, and if General A can move his command unknown to the enemy it will increase his chances of success.

Even by starting as soon as he can get his troops into motion, say at 7:00 PM, General A could not reach the heights near Franklin School with his most advanced infantry until midnight, 24-25 November, 1919. His cavalry, however, could reach these heights from Keymar in less than

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an hour and could even reach the Rocky Ridge— Appolds spur as soon as or before the Reds from near Lewistown could reach it. If the cavalry could be pushed on in this manner, General A would know by the time that his most advanced infantry elements reached Keymar whether the hostile forces were marching east on Rocky Ridge or Appolds, whether they had stopped before reaching these places, or whether they were continuing their march northward.

General A's further plans would depend upon the information that was received at that time. These might be to continue the march and take up a defensive position on the heights east of the Monocacy, or to concentrate and take up a position in readiness in the vicinity of Keymar—Bruceville with such guards as might be necessary at the various river crossings.

In either case, the first step is to start the march on Keymar as soon as the command can be gotten into motion. A position in the vicinity of Keymar—Bruceville is most suitable from the point of view of the defense of the most important sector of the river front, and also for the protection of the most vulnerable spot liable to attack by the enemy now on the march.

To prescribe any disposition for the main body beyond Bruceville, or rather the crossroads ½ mile south of that point at Keymar, would be wrong. Many things that might entirely change the situation can happen before the troops reach that point.

Information of Our Own Troops

General A has no information of the Blue force that hinders the accomplishment of his mission. From the strong position of the Blue right flank on Chestnut Hill the roads south of Rocky Ridge can be observed. Blue artillery near Chestnut Hill could assist materially by flanking fire in repulsing any attempt of the enemy to cross the Monocacy within range.

It is unfortunate that the corps cavalry is being reconstituted and is therefore unavailable. However, General A has a squadron at his disposal, which will be of the greatest assistance.

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Information of the recent defeat of the enemy will conduce to a high morale in the Blue forces. The information regarding the arrival of fresh Blue divisions and the contemplated Blue advance is confidential and cannot be given out. Although it might raise the morale of the Blue troops to know about this, it might also reach the enemy, who could then plan to meet its movement. General A would consider this information, however, and arrange his future movements so as to fit in best with the general plan.

The division observation squadron is on the corps airdrome. It is still under General A's orders, however, and is close enough to carry out any missions assigned it.

The Blue patrols from the 5th Corps near Thurmont and Emmitsburg will send in any information of the enemy that they obtain, but General A must count upon doing his own reconnaissance. He does not know what special orders the corps patrols may have.

The present camp site of General A's division is rather concentrated, but there are sufficient roads to provide easy egress. There is only one main direct road from Hahn's Mill to the vicinity of Bruceville. This is the Uniontown Road, which runs through Uniontown, Mt. Union Church, Middleburg and Keymar. The distance to Bruceville is 9 miles. Since this is a main thoroughfare it is probably in good condition for marching. The weather is favorable, cold and clear.

A road to the south, through Bark Hill to Middleburg, or through Union Bridge, Goodintent School and then to the north, could be used for the motorized transportation. The road through Taneytown and then southwest toward Bruceville could also be used by any motorized units that are strong enough, alone or with an escort, to prevent delay by possible hostile patrols.

Composition of the Column

Cavalry: General A's squadron of cavalry can be attached to the advance guard or made independent. At first it has a special mission, which is to gain the heights at Rocky Ridge and Appolds as soon as possible, delay any

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hostile advance in that direction and report all movements of the enemy.

Until the arrival of supporting troops at the heights east of the Monocacy, the cavalry commander will have to act on his own initiative and decide upon how to delay the enemy if the latter should attempt to cross the river. Information of the enemy's dispositions become more important as the Blue infantry column approaches, in order that proper measures may be taken to meet them. Once the heights east of the river are gained by the infantry units, the cavalry will withdraw the bulk of its force to the north of the line Thurmont—Appolds. This use of the cavalry will provide for guarding the northern crossings that cannot be reached quickly by infantry from the vicinity of Bruceville. In this movement the action of the bulk of the cavalry will also have to be more or less independent.

The enemy must be located by thorough patrolling west of the Monocacy in order to gain information from which to determine his intentions, especially if he does not attack at once. If the cavalry is acting independently, General A will give specific orders for this reconnaissance.

Considering all of these matters and the fact that the field of activity of the cavalry is at first a considerable distance in front of the advance guard, General A decides to use his squadron as independent cavalry.

If the enemy should attack, as may be expected, the fire power of the cavalry, alone, would be inadequate to delay him sufficiently. It does not seem worth while to attach artillery to the cavalry. Artillery will be in position east of the Monocacy and close enough to bring fire on the crossings by daylight in any case, and its value at night with the cavalry is doubtful.

Machine guns would be of great assistance. The brigade machine gun battalions cannot keep up with the cavalry. All or part of the division machine gun battalion, being motorized, could accompany the cavalry to Rocky Ridge or Appolds and help in delaying an attack there, If no attack developed it could rejoin the main force. If needed at all, the more machine guns the better, and since indications point to the possibility that the enemy may

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attack at the point under consideration, General A decides to attach the division machine gun battalion to the squadron commander's force.

Advance Guard: The composition of the advance guard should be such that it will not only be able to perform its primary duty of protecting the main body, but that it can also be used with the minimum shifting of troops for the accomplishment of any object that might grow out of the present situation.

As stated before, developments may require the organization of a defensive position, the guarding of a sector of the river front, or combat.

With cavalry operating in front, and particularly during a night march, a battalion of infantry would be sufficient to protect the main body.

An infantry brigade with artillery could well be used if the advance guard had later to occupy a defensive position, guard a sector, or engage in combat. A brigade has the advantage of being commanded by a more experienced officer and of being strong enough to handle almost any special situation that might arise. During the night march it could, and probably would use only a battalion of infantry as the support for the advance guard. The remaining units would march in the reserve. One possible disadvantage of having a brigade in the advance guard is that so large a force might be drawn into a line of action not in full accordance with General A's desires, and that so many troops might be engaged that they could not easily be withdrawn or their mission changed.

In this special situation General A wants to keep the decision in his own hands. For this reason, he decides to use the smallest unit that can perform the required duty, which is a battalion of infantry with machine guns. In order, however, to have a more experienced officer in command, he designates a regiment of infantry, less two battalions. The 2d Infantry is selected, as it can get out of camp the most quickly. The 1st Infantry, which has one battalion on outpost, will follow the 2d Infantry. The outposts will be drawn in toward Uniontown in time to take their place in the column as it passes. General A

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himself will be as far forward as he can, in order to obtain the earliest information and render prompt decisions.

Main Body: At night the main body can march closer to the advance guard than in the daytime. The cavalry out in front is additional protection. Any distance saved in the length of the column of combatant troops will result in reaching the destination sooner. A distance of ½ mile between advance guard and the main body appears satisfactory.

If the enemy intends to attack, light artillery will be needed as soon as the attack develops. Some could safely be placed in rear of the two battalions of the 2d Infantry that are at the head of the column. This, however, would allow very little time for preliminary reconnaissance of position, on account of the reduced distances for marching at night. On this account a better arrangement would be to have each light artillery regiment follow the infantry brigade with which it normally works. This arrangement also seems better than to have all of the light artillery in one group between the infantry brigades, as it leaves a shorter distance for the rear infantry brigade to march to get into action if the enemy is encountered before daylight and before the best effects of the artillery can be obtained.

If the artillery combat trains are placed in rear of all troops, the length of the column in front of the rearmost foot troops will be further shortened. Any firing that the artillery may do, particularly at night, will not exhaust the ammunition that is with the firing batteries. The passage of the infantry going forward will clear the road for the artillery combat trains, which can then bring forward additional ammunition.

The heavy artillery (motorized) will have difficulty if it follows closely in rear of the slowly moving column. In the present situation it could be placed at the rear and, with the other motorized units, move by jumps. Even this, however, is not necessary in the present instance. A central position from which the heavy artillery can cover all bridges over the Monocacy south of Piney Creek is found north of Bruceville. This locality can be reached by way of the Taneytown Pike and the road that leads

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southwest from Taneytown. It is quicker and surer, because it is unobstructed by other troops. There is, however, a possibility that on this road hostile patrols that may have slipped through will be met. A detachment of cavalry as a guard against this would be found most advantageous, but General A feels that he needs all of his cavalry on its present mission and that the heavy artillery itself can take care of any chance hostile patrol that is met. He therefore decides to send it over the route described, with no special cavalry escort.

A reconnaissance of the position to be occupied should be made before the heavy artillery reaches it. This detail should be ordered by General A, not only to make sure that fire can be delivered on the bridges or other targets desired, but also so that all other units will know that this can be done. This reconnaissance would probably be made even if not specifically ordered.

Engineers: In case any bridges are found broken, or the roads in bad enough shape to retard marching, a company of engineers at the head of the main body will save much time. General A decides to put one company there, with the remainder of the regiment marching ahead of the combat trains of the field artillery, from which position in the column it could do any further repairing of the road that was necessary.

Sanitary Train: The sanitary train can march best behind the combat trains of the light artillery. Being in the rear of the slower moving units, the motor vehicles can move more advantageously. It will be well enough forward by daylinght to be able to reach any position desired.

Signal Troops: The independent cavalry and the advance guard must have radio communication to General A's command post. A set at the head of the main body might also be found most useful. Radio sections at these places must be assured. The advance guard has a set with headquarters of the 2d Infantry. The others must be specifically ordered. These sets customarily set up and operate every hour on the march, but this may be assured by ordering it done.

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Local telegraph and telephone lines will be operated by signal corps men, or, if out of order, repaired by them. Detachments from the field signal battalion will be with all regimental and brigade headquarters on the march. Connection with the 5th Corps headquarters must be assured. If any units are left behind, such as trains, local lines will connect them with any place to which the division moves. All of these details require men. Only a part of the signal battalion will be left to march in the column, and this can be placed so that it will arrive early and help establish communication. A good place for it seems to be in rear of the company of engineers at the head of the main body.

The division commander desires prompt information of any happenings at the front. The advance guard will reach Keymar at about 10:15 PM. By following the cavalry closely, General A can reach this point well in advance of that hour, receive information of anything that has been learned of the enemy up until that time, and be in a position to direct the march from that point on without delay. He could obtain the same information by wire or radio at his present headquarters at Hahn's Mill. However, he desires to be closer than this to the field of action in order to direct the preliminary movements if a fight should occur before morning or, as is possible, at the moment that his infantry arrives on the heights east of the Monocacy. Staying at Hahn's Mill until the entire road was filled with troops might and probably would keep him enroute between the two places a longer time than he would desire, particularly at night, unless he went by another road. If he were so delayed until 10:00 PM or later, this might be the very time at which the most important developments occurred. On the whole, General A believes it best to get to Keymar by 9:00 PM at the latest. To insure a guard at that point until his advance guard reaches it, a few men should be left there by the cavalry.

Observation Squadron: The observation squadron can work from its present field. It is not equipped for night flying and would not be used for that purpose except in an emergency.

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Trains: The field trains of the organizations on the march will be of no use during the night of the march. The troops have with them supplies for the next day, 25 November, when, if the situation permits, the field trains can join them from their present camp sites. To make this move more quickly, they can be assembled later to march at daylight if desired.

The ammunition train and engineer train will not be needed during the night march, but probably will be the next day. They should be ready to move at daylight.

The supply train is suitably located at present to work between the refilling point at Westminster and the division. It can best remain where it is until further orders.

The military police company will be needed to take care of prisoners, if an engagement occurs, and direct traffic. By marching in rear of all troops it will arrive in time for distribution to the points desired in the daytime. Being at the rear during the march, it will also assist in preventing straggling. Detachments should in any case be sent out in advance to cover towns, road crossings and similar points.

DECISION

In order to meet the situation as he estimates it, General A decides: to march on the crossroad ¼ mile north of Keymar via the Uniontown—Union Church—Middleburg road, starting at 7:00 PM, 24 November, 1919; to designate the 2d Infantry (less 2 battalions) as advance guard; to have the main body follow at a distance of ½ mile; to have the 1st Squadron, 1st Cavalry, with the 1st Machine Gun Battalion and one radio section attached, start from Keymar at 7:00 PM, occupy the Rocky Ridge—Appolds spur, report any movements of the enemy and, in case of an attack delay the enemy's advance; to have the 3d Heavy Artillery start at 9:00 PM, 24 November, 1919, and march via the Taneytown Road and the road that leads southwest from Taneytown to a position north of Bruceville, and to have advance reconnnaissance made by that regiment of positions suitable for firing on the bridges over the Monocacy and their approaches that are within range; to have the observation squadron reconnoiter the

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roads west of the Monocacy, commencing at once, the reconnaissance to continue after dark in the emergency if moonlight and other conditions permit; and finally, to establish his own command post at Keymar by 9:00 PM, 24 November, 1919.

Second Requirement:

WARNING ORDER

1st Div,
HAHN'S MILL, MD.,
24 Nov 19, 6:00 PM.

FIELD ORDERS
No 1

Maps: Pennsylvania-Maryland Geological Survey Map, 1:62500, Taneytown and Emmitsburg Quadrangles.

This division will prepare to move at once by marching.

The 1st Sq 1st Cav (less 10 men to be left at KEYMAR until further orders), the 1st MG Bn and 1 rad sec will be assembled at KEYMAR ready to march at 7:00 PM this date.

The following troops will be prepared to start from TOLLGATE at eastern exit of UNIONTOWN: 2d Inf (less 2 bns) at 7:00 PM, 24 Nov 19; 1 rad sec, Co A 1st Engrs, 1st F Sig Bn (less dets), 1st Brig (less 2d Inf, less 2 bns) at 7:35 PM.

Troops now on outpost are hereby relieved and will assemble at UNIONTOWN ready to take proper place in column as it passes.

The 1st Obsn Sq, F Tns of all organizations, 1st Sup Tn, 1st Engr Tn and 1st Am Tn will not move tonight. March orders follow.

By command of Maj Gen X,

Y,
C of S.

Distribution:
(By telegraph and courier.)

5th Corps
Div Staff
CO Ind Cav
CO Adv Gd
CO's all brigs
CO 1st F Sig Bn
CO 1st Obsn Sq
CO 1st Sn Tn
CO Tns

MARCH ORDER

1st Div,
HAHN'S MILL, MD.,
24 Nov 19, 6:30 PM.

FIELD ORDERS
No 2

Maps: General Map, Gettysburg-Antietam, 1"=10 miles.
Pennsylvania-Maryland Geoligical Survey Map, 1:62500, Taneytown and Emmitsburg Quadrangles.

Troops

(a) Independent Cavalry Major D
1st Sq 1st Cav (less det)

1. The enemy's general attack, in which all but two of his divisions were identified, has been repulsed and his troops have been driven back to their original positions. THURMONT and EMMITSBURG were free of the enemy

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1st MG Bn
1 rad sec

(b) Advance Guard
Col C
2d Inf (less 2 bns)

(c) Main Body: in order of march
1 rad sec
Co A 1st Engrs
1st F Sig Bn (less dets)
1st Brig (less 2d Inf less 2 Bns)
1st FA Brig (less 2d LA, 3d HvA and C Tn)
2d Brig
2d LA
1st Engrs (less Co A)
C Tn 1st FA Brig (less C Tn 3d HvA)
1st Sn Tn
1st MP Co (less dets)

at 3:00 PM today. Reconnaissance west of CREAGERSTOWN met resistance by Red patrols. A column of troops, estimated at more than one brigade, was moving north from FREDERICK through YELLOW SPRINGS toward LEWISTOWN at 5:00 PM today.

Our 3d Army continues to hold the line of the MONOCACY. The right of the 5th Corps rests on CHESTNUT HILL with outposts along the MONOCACY as far north as the LEGORE BRIDGE, inclusive.

2. This division, with the 1st Sq 1st Cav attached, will march at once to protect the right flank of the 5th Corps.
3. (a) The independent cavalry, with the 1st MG Bn attached, will start from KEYMAR at 7:00 PM, 24 Nov 19 and occupy the ROCKY RIDGE—APPOLDS spur. It will maintain continuous observation and report all movement of the enemy, and in case of attack delay the enemy's crossing the MONOCACY until after midnight tonight. After that hour, the independent cavalry will conform to any movement of the enemy north of the line THURMONT—APPOLDS, and delay any attempt to cross the MONOCACY, a guard being left on the ROCKY RIDGE—APPOLDS spur. Roads leading east from EMMITSBURG will be observed. Radio communication with advance guard.

(b) The advance guard will start from the TOLLGATE at eastern exit of UNIONTOWN at 7:00 PM, 24 Nov 19 and march via MT. UNION CHURCH—MIDDLEBURG, on the crossroad ½ mile north of KEYMAR. Radio communication with independent cavalry.

(c) The main body will start from TOLLGATE at eastern exit of UNIONTOWN at 7:35 PM, and follow the advance guard at ½ mile.

(d) The 3d HvA will start from its present camp at 9:00 PM, 24 Nov 19 and march via the TANEYTOWN ROAD to TANEYTOWN, thence southwest to a position north of BRUCEVILLE. Preliminary reconnaissance of this position will be made with a view to firing on all bridges and approaches from PINEY CREEK to MILLERS BRIDGE, both inclusive. Alternate positions for fire on river crossings north of PINEY CREEK will be selected. The command will furnish its own security detachments for the march.

(e) The 1st F Sig Bn will utilize commercial wire systems for communication along division axis.

(f) The 1st Obsn Sq will reconnoiter all roads west of the MONOCACY between LEWISTOWN and EMMITSBURG, both inclusive. This reconnaissance to commence at once and be carried on after nightfall if conditions of visibility permit.

(x) Halts for 10 minutes each hour, commencing on the hour. Radio communication during halts.

4. Field trains of all organizations except 1st Obsn Sq will remain in present camp sites under orders of the CO Tns. They will be assembled ready to march at 7:00 AM, 25 Nov 19.

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The Am Tn and Engr Tn will be assembled ready to march at 7:00 AM, 25 Nov 19.
The Sup Tn will await orders in its present location.
Division refilling point: No change.

5. Plan of signal communications: No change.
Axis of signal communications:
Division: HAHN'S MILL—KEYMAR—FRANKLIN SCHOOL.
Command posts:
Division command post will close at HAHN'S MILL at 9:00 PM, 24 Nov 19 and open at KEYMAR same date and hour.
Brigades: en route.

By command of Maj Gen X,

Y,
C of S.

Distribution:

5th Corps
Div Staff
CO Ind Cav
CO Adv Gd
CO's all brigs
CO 1st F Sig Bn
CO 1st Obsn Sq
CO Tns
CO 1st Sn Tn

(C) A MARCH TO BATTLE

MAJOR R. O. VAN HORN,
Infantry

A campaign, or even a combat, is made up of a series of events, each one of which constitutes a special situation. The successful solution of these situations is what makes a great leader of troops.

Only a few of these special situations actually involve combat. Owing either to the distance from the enemy or to lack of sufficiently definite information of his location and dispositions, the special situations that confront the commander of an aggressive force each day may be met in the vast majority of cases by a march. It is only when the enemy's strength, location and dispositions are well known, or when the opposing forces are so close to each other that he would not have time to alter them, or where the time element is imperative, that a correct decision for combat can be made and actual orders for the combat dispositions issued.

Marches have heretofore been classed under two general heads:

First—Peace time marches.
Second—Marches in the presence of the enemy.

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These might be better classified for an offensive force in open warfare as follows:

First—Marches outside of the sphere of action of the enemy.
Second—Marches to gain contact with the enemy.
Third—Marches made after contact is gained, for the purpose of putting the troops on the battlefield with the fewest possible losses and so disposed as to fight to the best advantage of their armament.

The first two classes of the second group are discussed elsewhere. Briefly, the main considerations in the first class are the comfort of the troops, discipline and training. In the second class, tactical considerations take precedence.

The third class will now be considered.

With modern weapons of great range, aerial observation and aerial bombing, the depth of the battlefield has become greatly increased.

In circumstances under which a force could formerly halt and deploy at a distance of three or four miles from the enemy, it may now have to advance more than twice that distance under artillery fire, and is subject to attack from the air at a much greater distance. In an offensive operation under open warfare conditions, the phase of the situation from the time that march conditions cease until the time that the first firing positions of the infantry are reached might be classified either as the last stage of the march, "march to battle" phase as it is sometimes called, or the first stage of the combat itself. It is impossible to state in general terms just when the march to battle ceases and the combat begins.

In certain special situations on the defensive, and in other situations where the offensive movement is to commence from a line already held by our own troops, the approach will generally be executed under the orders issued for the combat. Its object, as in all other approach marches, is to get the troops close enough to the enemy, with the fewest possible losses, to allow them to use their weapons to the best advantage. It may be prescribed by the combat order, since the information of the enemy is more complete than in open warfare situations on the offensive.

In an open warfare situation on the offensive the march to battle phase will generally comprise:

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1. An approach march, which in its last stage should be perpendicular to the front to be occupied.
2. For each unit that is marching separately:
   (a) Reconnaissance.
   (b) Breaking up of larger into smaller units and advancing in the direction of the enemy.
   (c) The deployment of the leading units and the separation of units in rear into groups of such sizes as to minimize losses.
   (d) The continuation of the advance in this formation under cover of artillery fire, smoke screens or the ground to the first firing positions, after which combat conditions come into effect.

With forces as large as a division a zone of advance may be assigned from the beginning. With smaller forces the zone of advance, direction of march, or point on which to march may often not be ordered until the unit is broken up into smaller units, and separate missions become necessary. Orders cannot easily be changed once this has been done and the troops put into motion within range of the enemy's guns. The order for the march to battle may, therefore, be the combat order itself. However, when the strength and location of the enemy are not fully known, that order may prescribe only the zone of activity, the direction of the advance, or the point on which to march, as a preliminary to the issuance of the combat order. Combat dispositions and orders for combat are prescribed elsewhere. For the present there will only be considered several different methods of putting the troops into their first firing positions.

In an open warfare situation on the offensive, the following points will usually require consideration in issuing orders for placing troops upon the battlefield:

Division: A zone of advance, a route, or a position to be occupied. This position may be a locality, a line, or an area.
Brigade: A zone of advance, a route, or a position (in readiness or in line).
Regiment: A zone of advance, a route, or a position (in reserve, in readiness, or in line).
Battalion: A route, a position (in reserve or in readiness), or a special mission that is to be carried out.

In connection with the above, the following must also be considered:

(a) Cover for movement, advance from cover to cover, protection from fire and from ground and aerial observation. This concerns the manner of marching companies and platoons, that

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is the formation into platoon, section and squad columns, or deployed.

(b) Approach march of infantry auxiliary weapons (accompanying guns, Stokes mortars, one-pounders and machine guns); the disposition of the cavalry and the motorized machine gun battalion; the location during the approach march of the light artillery, the heavy artillery, the engineers, the signal troops, the sanitary units, and the field, supply, engineer and ammunition trains; the location of the commander.

On the defensive the battle line is more or less well known. Routes are known and sectors are assigned to units for defense, or units are so located as to be able to reinforce the line. No regular approach to battle formation is customary, as cover from view is the controlling factor. This approach is best carried out at night.

For an offensive from a fixed and occupied line the approach is made at night to prevent the enemy from learning of it.

In making a concentration preliminary to an offensive, there is no regular approach march. Only "moves" are made. These are generally executed at night or in thick weather. They are made from cover to cover, until finally a position in concealment is reached from which the unit can move to the point desired at the required time.

The following situation will be taken up to illustrate some of the principles involved in a march to battle. The situation is the same as that of "A Night March for Flank Protection" (*ante*). The special situation selected is based on a solution adopted by some students in the problem referred to.

Maps: General Map, Gettysburg-Antietam, 1″=10 miles.
Pennsylvania-Maryland Geological Survey Map, 1:62500, Taneytown and Emmitsburg Quadrangles.

General Situations:

Same as in Chapter I (B), page 22.

Special Situation (continued):

General A decided to march on New Midway in one column via the Uniontown—Middleburg—Ladiesburg road, starting at 6:30 AM, 25 November, 1919. The cavalry was directed to send patrols to the crossings of the Monocacy during the night 24-25 November, 1919. At 6:30 AM, 25 November, the bulk of the cavalry was to cover the front

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and right flank of the main body on the march and to send patrols across the Monocacy toward Thurmont and Emmitsburg.

At 1:30 AM, 25 November, 1919, a cavalry patrol leader called up from Franklin School and reported that Red infantry had driven his patrol away from the crossing about 1 mile north of Miller's Bridge at 1:15 PM. Further attempts to use the telephone to points in that vicinity failed.

By 3:30 AM reports from cavalry patrols and from inhabitants established the fact that hostile infantry had commenced crossing the Monocacy at Mumma Ford at about 3:00 AM, and that other troops had been crossing the river 1 mile north of Miller's Bridge since about 1:15 AM. Some light artillery was reported in the last named column. No enemy was seen south of Double Pipe Creek, but Miller's Bridge was defended by Red infantry with machine guns, and could not be approached.

At 3:30 AM, 25 November, 1919, General A's command, with the exception of the cavalry patrols mentioned, was still in the camps as given in the original situation.

Required:

1. General A's decision.
2. The formal orders issued by General A.
3. Reasons in brief for action taken.

Solution

First Requirement:

Decision

To march against the enemy at once and drive him west of the Monocacy.

To conduct the march in such a manner that the attack will be made north of Big Pipe Creek and will advance west or slightly south of west, troops so disposed for the march as to facilitate the use of both brigades abreast in the attack, with the reserve in rear of the right flank.

To have the 1st Squadron, 1st Cavalry, and the 1st Machine Gun Battalion screen the movement and delay the

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enemy's advance, sending patrols north and south to observe approaches to the flanks.

To have the heavy artillery march where it may quickly take position to support the advance by fire from the general vicinity of Copperville.

To request the 5th Corps to aid with artillery fire on river crossings.

To have the observation squadron reconnoiter the roads from Thurmont and Emmitsburg and, when practicable, attack hostile ground troops, especially at river crossings west of Franklin School.

To hold all field trains and the ammunition, engineer and supply trains in their present positions.

Second Requirement:

WARNING ORDER

1st Div,
HAHN'S MILL, MD.,
25 Nov 19, 3:40 AM.

FIELD ORDERS
No 3

This division will march westward in two columns of 1 brig Inf and 1 regt LA each. Leading troops of each Inf brig will be ready to march at 5:00 AM, 25 Nov 19. The 1st MG Bn will march at once and join 1st Sq 1st Cav at KEYMAR; both of these organizations will be ready to march from that place at 5:00 AM, 25 Nov 19. Troops on outpost will be relieved in time to join their commands when they pass outpost line.

Sup Tn and F Tns of organizations will remain in present positions. Remainder of Div Tns will receive orders later.

March orders will follow.

By command of Maj Gen X,

Y,
C of S.

Distribution:
(By telephone and courier.)

CG 5th Corps
Div Staff
CO 1st Sq 1st Cav
CO 1st MG Bn
CO 1st F Sig Bn
CO 1st Sn Tn
CO Tns
CO 1st Obsn Sq
CO's all brigs

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MARCH ORDER

1st Div,
HAHN'S MILL, MD.,
25 Nov 19, 4:30 AM.

FIELD ORDERS
No 4

Maps: Pennsylvania-Maryland Geological Survey Map, 1:62500, Taneytown and Emmitsburg Quadrangles.

Troops

(a) Independent Cavalry
Major D
1st Sq 1st Cav
1st MG Bn
1 rad sec

(b) Left Column
Brig Gen B
1st Brig
1st LA
Co A 1st Engrs
4th Amb Co

(c) Right Column
Brig Gen C
2d Brig
2d LA
Co B 1st Engrs
3d Amb Co

(d) Center Column in order of march
1st F Sig Bn (less dets)
3d HvA
1st Engrs (less Cos A and B)
1st Sn Tn (less 3d and 4th Amb Cos)

1. Hostile infantry and light artillery began to cross to east bank of the MONOCACY at 1:15 AM today at bridge about 1 mile north of MILLERS BRIDGE, and at 3:00 AM at MUMMA FORD. Our patrols have been unable to penetrate west of FRANKLIN SCHOOL. No enemy reported south of DOUBLE PIPE CREEK.
2. This command will march on FRANKLIN SCHOOL and drive the enemy west of the MONOCACY.
3. (a) The independent cavalry will march at 5:00 AM and, from a position in vicinity of the BRUCEVILLE—TANEYTOWN road, screen the movement and delay the advance of the enemy eastward. Patrols will observe river crossings to the north and south. When forced to uncover movements of main body, the independent cavalry will move to the north and cover our right flank and front. Troops will be sent to the south to cover our left front. Information of strength and location of enemy now at FRANKLIN SCHOOL will be obtained at once.

(b) The left column will start at 5:15 AM from TOLLGATE at eastern exit of UNIONTOWN and march via RJ 659—FAIRVIEW SCHOOL—TREVANION and roads to west to position in readiness facing west between CR 528 (¾ mile southeast of CRABSTER) and point ¾ mile north of FUES MILL. Energetic reconnaissance will be made in direction of FRANKLIN SCHOOL to determine strength and location of enemy.

(c) The right column will start at 5:10 AM from HAHN'S MILL and march via RJ 590—TANEYTOWN road—OREGON SCHOOL, thence westward to position in readiness facing west between RJ 561 (about 1 mile east of CRABSTER) and point 1 mile southwest of TANEYTOWN. Energetic reconnaissaince will be made in direction of CLEARVIEW SCHOOL to determine strength and location of enemy.

(d) The center column will follow right column without distance to CLEARVIEW SCHOOL and await orders at that point. Reconnaissance for suitable position to support an attack to the west will be made by the heavy artillery.

(e) The 1st Obsn Sq will reconnoiter all roads west of the MONOCACY from direction of THURMONT and EMMITSBURG at daylight. Information of location and strength of enemy will be reported

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at once. Ground targets will be attacked whenever practicable, particularly at river crossings.

(f) The 1st F Sig Bn will maintain courier communication between the columns and division headquarters until 8:00 AM. Local lines will be employed to CO Tns.

4. The 1st Sup Tn and all F Tns will await further orders in their present camps.

The 1st Am Tn and the 1st Engr Tn will be in readiness to move from their present camps after 10:00 AM, 25 Nov 19.

5. Plan of signal communication: No change.

Axis of signal communication:

Division: HAHN'S MILL—COPPERVILLE—CRABSTER.

Command posts:

Division headquarters will close at HAHN'S MILL at 8:00 AM, 25 Nov 19, and open at COPPERVILLE same date and hour.

Brigades: en route.

By command of Maj Gen X,

Y,
C of S.

Distribution:

CG 5th Corps
Div Staff
CO's all brigs
CO Sn Tn
CO 1st Obsn Sq
CO 1st Sq 1st Cav
CO 1st MG Bn
CO 1st F Sig Bn
CO Tns

At 4:30 AM General A sends the following message:

1st Div,
HAHN'S MILL, MD.,
25 Nov 19, 4:30 AM.

To CG 5th Corps,
LIBERTYTOWN, MD.
(By courier.)

Herewith copy of march order this date. Shall attack enemy east of the MONOCACY as soon as I can reach him. General direction of attack west or slightly south of west depending upon position in which enemy is found.

Request artillery fire from north flank your corps on river crossings west of FRANKLIN SCHOOL and on any targets in that vicinity. Fire to commence as soon as practicable.

Will inform you later when attack starts and will request whatever artillery fire to support it that you deem practicable to furnish.

X,
Maj Gen.

A brief of the above message was also sent in code by telegraph.

Third Requirement:

Reasons in brief.

General A realizes that in order to carry out his mission, he must drive the enemy west of the Monocacy.

To do this he must attack. An attack on the enemy's position from the south or southeast, while it would afford better protection to the right flank of the 5th Corps, would

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have to cross the very difficult obstacle of Double Pipe Creek under fire from excellent hostile positions on the high bluffs that overlook the creek. The chances of defeat to an attack from this direction are great. However, if defeated, the remnants of General A's command will still be between the enemy and the right flank of the 5th Corps, while if an attack north of Double Pipe Creek were defeated the enemy would be between General A's command and the corps.

The enemy is still cramped for room and has the Monocacy directly in his rear. As long as he is close to the Monocacy, that stream prevents him from extending his front to the north, and Double Pipe Creek prevents free maneuvering to the south.

The heights at Franklin School rise to the northeast. An attack from the northeast would therefore have every possible advantage of terrain. On the other hand, it might cause a little more delay than a movement directly toward Franklin School, and this at a time when every minute means that more hostile troops have crossed the river. The winning of the fight is the most important thing, however, and therefore an attack north of Double Pipe Creek is decided upon.

This decision having been made, the sooner the attack can be started, the fewer hostile troops will be encountered.

In his position at Hahn's Mill General A is too far away from the Reds and does not know their location and strength with sufficient exactness to order the actual starting and direction of the attack. He must therefore so march his troops that when they come under fire of the enemy's artillery they will not have to maneuver further, but can start the advance to the attack in battle formation with the least delay. The auxiliary arms and weapons must also be in such positions in the columns that they can most quickly take their stations to support the attack.

It seems wisest to march each infantry brigade with its supporting artillery on a separate road. Each column can then approach its sector of the final line from the rear and in as open a formation as is necessitated by the enemy's fire.

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Since the ground favors the envelopment of the enemy's left flank, the right column should be echeloned for maneuver, and followed on the same road by the troops that will not be needed at once in the first line but that will be needed in the prosecution of the main attack.

A position near Keymar might be considered for the heavy artillery, since from there it can reach the enemy with closer and more accurate fire and with excellent flanking effect. It is, however, rather unwise to place it so far from the protection of other troops. Although no Reds have yet been seen south of Double Pipe Creek, still they might penetrate in that direction. The squadron of cavalry and the divisional machine gun battalion hardly constitute sufficient guard for the heavy artillery regiment in addition to their other duties. The heavy artillery is therefore ordered to follow the right column.

The infantry brigades are ordered to march to positions in readiness. The hour of advancing from these will be given as soon as both brigades have reached them, and co-ordination in the attack will thus be secured. It is too early yet to calculate when this advance will start or to determine its direction, and not enough information of the enemy has been obtained to warrant issuing an attack order.

The composition of the brigade columns is left in the hands of the brigade commanders, in order that the troops that they decide to have carry out the assault may be put in the lead, and the other units conveniently placed.

The ammunition and engineer trains may be needed later on in the day. They are therefore ordered to be in readiness to move. The supply train and the field trains will not be needed before night. They can reach the command by that time from their present positions.

Division headquarters is ordered to Copperville, as that point is centrally located and from it prompt communication may be had with all elements of the command.

Corps headquarters is asked at this time to assist by firing on the bridges for the purpose of delaying the enemy in his crossing. Later on, fire will be asked for the purpose of supporting the attack. The corps artillery would probably

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carry out this fire without a request, but it seems a wise precaution to ask for it.

For further illustration of the development of an approach march into conditions involving combat, the following situation is assumed to have developed:

General and Special Situations (same).

Special Situation (continued):

At 10:00 AM, 25 November, 1919, the enemy's advanced detachments, aided by artillery and machine gun fire, have pushed the Blue independent cavalry off of the Bruceville—Taneytown ridge. In its retirement the cavalry uncovered Blue infantry moving westward through crossroads 528 and road junction 429 (on Taneytown—Middleburg road). Three troops and the 1st Machine Gun Battalion withdrew northward, and one troop fell back toward the south.

By this time, 10:00 AM, the enemy is known to be occupying the ridge from Nailor's Mill northeast through road junctions 408 and 488. The left elements of the enemy's line have been located by patrols about ½ mile northeast of road junction 488. Hostile patrols have been seen as far south as Keymar, but no large bodies south of Double Pipe Creek. Blue patrols found no signs of the enemy in the vicinity of Clearview School. The artillery fire of the Blue 5th Corps since daylight has been particularly effective on Miller's Bridge and the crossing 1 mile to the north.

At 10:00 AM, General A's division is disposed as follows: both columns are in place as ordered, each with one battalion of infantry and one machine gun battalion in front, along the crossroads 528—road junction 429 ridge. The remaining battalions of these regiments are massed in the ravine about ½ mile east of their advanced battalions. The remaining infantry regiments of the brigades are massed along the creek bottom about ½ mile farther east. The light artillery regiments of both columns are on the eastern slopes of the ridge about ½ or ¾ mile still farther east. The center column is just closing up on its head at crossroads 507 (near Copperville).

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Required:

General A's orders.

Solution

1st Div,
COPPERVILLE, MD.,
25 Nov 19, 10:00 AM.

FIELD ORDERS }
No 5 }

Maps: Pennsylvania-Maryland Geological Survey Map, 1:62500.
Emmitsburg and Taneytown Quadrangles.

1. The enemy in our front occupies a position along the ridge from NAILOR'S MILL through RJ 408 and RJ 488, his left resting about ½ mile northeast of RJ 488. Only hostile patrols reported south of BIG PIPE CREEK.

   Our corps artillery has been firing effectively on bridges over the MONOCACY in enemy's rear since daylight.

2. This command will attack at once, enveloping the enemy's left flank and driving him west of the MONOCACY.

3. (a) The 1st LA will support 1st Brig; 2d LA will support 2d Brig. The 3d HvA, from position near COPPERVILLE, will engage enemy's artillery and later support the enveloping attack by fire on enemy's line north of RJ 488.

   (b) The 1st Brig will attack the enemy from NAILOR'S MILL to RJ 488 (exclusive). Northern limit of sector, CR 528 (exclusive) —CR 481 (inclusive)—RJ 488 (inclusive). This attack will conform to movements of 2d Brig on its right. The 1st Bn 2d Inf will form part of the division reserve, joining it when the left elements of 2d Brig have passed ridge near CR 528.

   (c) The 2d Brig will attack the enemy from RJ 488 (inclusive) and envelop his left flank. Southern limit of sector, same as northern limit 1st Brig.

   (d) The 1st Engrs and 1st Bn 2d Inf, Col E commanding, will constitute the division reserve and follow in rear of right of 2d Brig.

   (e) The 1st Sq 1st Cav will continue its present duty of protecting front and flanks of the division. Information of approach of any hostile troops from direction of EMMITSBURG or THURMONT will be obtained.

   (f) The 1st Obsn Sq will attack any favorable ground targets, particularly on the northern part of the enemy's line.

4. Station for slightly wounded: COPPERVILLE.

   Dressing stations:

   2d Brig: RJ 561.
   1st Brig: On creek about ½ mile east of CR 528.

   Ammunition distributing station: COPPERVILLE.
   1st Am Tn and 1st Engr Tn will move to COPPERVILLE.
   1st Sup Tn and F Tns will remain in present positions.

5. Plan of signal communication: No change.

   Axes of signal communication:

   Div: COPPERVILLE—CR 528—CR 481—RJ 488.
   2d Brig: RJ 561—CRABSTER.
   1st Brig: RJ about ½ mile south of CR 528—RJ about ½ mile south of CR 481.

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Command posts:
Div: COPPERVILLE.
2d Brig: RJ 561.
1st Brig: RJ about ½ mile south of CR 528.
By command of Maj Gen X,

Y,
C of S.

Distribution:

CG 5th Corps	CO 1st F Sig Bn
Div Staff	CO's all brigs
CO 1st Sq 1st Cav	CO 1st Sn Tn
CO 1st Obsn Sq	CO Tns

(D-1) CHANGE OF DIRECTION

CAPTAIN J. A. MCANDREW,
Infantry

As a tactical study a change of direction is considered only when it is made in the presence of hostile forces. It is one of a number of general tactical situations that may arise during the movement of troops in the presence of the enemy.

In open warfare situations when troops are marching in the presence of the enemy changes in the situation may come with great rapidity. Under such conditions it is impossible for a commander to foresee the events that the next few hours may bring forth.

The issue of detailed march orders is therefore delayed as long as conditions permit, in order that a sudden change in the situation may not require the revoking of an order that has been issued too far in advance. To make it possible to postpone the issue of the march order to the last minute and take advantage of any change in the situation, a warning order is issued with as little delay as possible.

Again, conditions may be such that it will not always be possible to foresee the end of the day's march. In such cases the march order may direct the command to march provisionally on some intermediate point in the right direction, arrival at which without interruption is reasonably certain.

However, no matter what precautions are taken prior to issuing the march order, a change in the situation may occur suddenly while the troops are moving, which will force the commander to change the direction of march of his command. This change in the situation may or may

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not be of sufficient seriousness to effect a change in the mission, which is a question that must be decided by the commander. On him rests the responsibility for making the decision, and on him will fall the consequence of an incorrect one. The commander must, with the means at his disposal, carry into effect the plan of his superior. To do this, he must first understand it. Then he must make the most suitable use of his command to carry it out.

A change in the direction of march in the presence of the enemy will fall, in general terms, under one or the other of the following classifications:

(a) Pursuant to orders from higher authority.
(b) On the commander's own initiative while placed temporarily in an independent position.

Orders from higher authority for a change in the direction of march may arise out of the following conditions:

1. In conformity with a general plan of concentration before a battle, or in arranging for the junction of several parts of an army.
2. As the result of a change in the line of operations.
3. For the purpose of turning the enemy's flank.

Prior to gaining contact with the enemy a direct advance on parallel roads is most convenient for the movement of large masses of troops, and the front should always be as broad as the military situation justifies. A movement of this kind on a broad front would not lead to a concentration on the field of battle. Therefore, before a battle, a change in direction is made by certain ones of these columns in order to make a converging advance possible. This converging of the columns is ordered when it becomes clear where the tactical decision may be expected. It is directed toward an area rather than at a point. These changes of direction are ordinarily screened and protected by masses of cavalry. They are executed by turning the heads of the various columns to the right or left, as the case may be, forming a line of columns, and, after proceeding far enough in the desired direction, turning to the front again. These changes of direction of themselves afford little tactical interest and are mainly questions of march technique and supply.

It is with a change of direction that is made on the commander's own initiative that this discussion is concerned.

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A commander cannot always rely on being able to receive instructions from higher authority as to his course of action in a sudden emergency. The imperfections in the means of communications may prevent it. In situations of this type the commander must reach a decision himself and bear the responsibility for anything that he does in his effort to carry out the spirit of his instructions.

Under these circumstances a commander, by making a change in his direction of march, may be able to carry out his original mission. It may happen, for instance, that a command is ordered to march from A to C. At a point B on this route the enemy is encountered unexpectedly and it is not advisable to attack. The position of the troops may be such that, by changing the direction of march, the enemy can be avoided and the command thus be enabled to reach C by a different route. Aside from arriving at a decision to avoid the enemy or to fight, the tactical features embraced in this situation consist in taking the proper security measures to protect the command during the change of direction, and the proper march technique in placing the troops on the new route. These measures will be discussed in detail further on.

On the other hand, it may happen that the original mission must be abandoned and a change in direction of march made to carry out a mission, newly created by changed conditions, that is in spirit with the original orders.

This condition may be encountered under any of the following situations:

(a) Decision for an immediate engagement. The direction of advance of the enemy may be such that an engagement will inevitably occur sooner or later. If the nature of the country is such as to place the opponent in an unfavorable position to receive an attack, a decision to take advantage of this and change the direction of march in order to attack will often be correct.

(b) Change of mission. While on the march the mission of the command may be suddenly changed, and orders received, for example, to join the main body for battle. This particular situation might more properly be classified

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as a change ordered by higher authority, yet the situation of the detachment with regard to a hostile force may be such as to require the commander to reach an independent decision. It may be more advantageous to the general plan to prevent a reenforcement of the enemy by detaining a portion of his command than by complying with the order to join the main body. If the hostile force is inferior in strength, it may be contained by a portion of the command, while the rest marches to join the battle. On the other hand, a command should never allow itself to be contained by an inferior force, and it is very difficult to determine the exact strength of the opposing force, which may even not be cleared up until after the battle. The decision as to whether or not to change the direction of march is therefore determined primarily by the situation of the whole force.

(c) Failure to receive orders. In cases not covered by orders "to march to the sound of the guns" may be the best course of action. It will be assumed that a command is detached on a special mission from a larger force and later receives information that the main body has unexpectedly encountered the enemy in force. In such a case all detachments within reach would ordinarily rejoin for the main battle, abandoning for the time their less important missions.

The information of the battle might be received either directly or indirectly. In the former case it would come as a message from the main body stating that it had unexpectedly encountered the enemy in force, and directing the detachment to join at once. In the latter case no word would be received from the main body, but the fact that a battle was in progress would be made known to the detachment commander by reports, or perhaps even only by the sound of guns. However, the fact that even the heaviest firing will not always be heard by troops that may be only a few miles distant from the actual battle indicates that sound is at best but an unreliable guide. To chance a battle on the assumption that any friendly troops in the neighborhood will come up on hearing the sound of the guns is a dangerous practice, unless the situation is so well defined and clear that the arrival of supports is a certainty.

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It may be taken, however, as a safe military axiom that when in doubt one cannot do better than "to march to the sound of the guns." A commander, from his knowledge of the general course of events, should be able to appreciate the situation and decide as to whether or not his presence is required.

The correct decision in such a situation as this would be determined by the general situation. To change the mission of the command without orders and without being forced to do so by the action of the enemy requires that the qualities of the commander include loyalty in its broadest sense, disinterestedness, willingness to assume responsibility, and the ability to suppress all personal aims for the common good.

In determining the mission when arriving at an estimate of the situation it must be remembered that the object is not always to fight. It may be posible to accomplish the desired purpose without fighting.

In considering whether or not to diverge from a line of march it must first be decided whether or not the result of continuing with the line of march unchanged would bring about an engagement with the enemy. It must next be considered whether or not, under the orders that have been received, it will be correct to engage in a conflict that can be avoided. In considering this point, particular attention must be paid to what magnitude the action might assume and how the withdrawal from action could be made. To engage in an avoidable combat without a definite object is a blunder.

If it is decided that, in order to accomplish the mission, the direction of march must be changed and contact avoided, the line of retreat is an important consideration. On the other hand, if the accomplishment of the mission, which might be to gain time for some more important operation, requires that the direction of march be changed and the enemy attacked at the sacrifice of the entire command if necessary, a line of retreat need receive but little consideration.

Whether or not the change in the situation is such as to warrant the subordinate commander in changing his mis-

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sion is a question for that commander alone to decide. In this he is the sole judge. It should be remembered that subordinates should not change their assigned mission or depart from their orders without sound and sufficient reasons, deduced by a thorough analysis of the whole situation.

However, there are situations that may arise during the execution of a march when, on account of altered circumstances, the original mission of the march becomes impossible of execution. Then there may be found an opportunity to adopt some other course that will prove of greater advantage to the higher commander under the changed situation than would the course of action originally ordered under the mission. However, such a change should be in accord with the plans of the higher commander, and should also be such as the latter would probably order if he were present and knew the circumstances.

If a decision has been reached to avoid the enemy by making a change in the direction of march, the next consideration is the network or roads.

After the various routes by which the march may be conducted without an engagement have been located, those leading towards the enemy, or what amounts to the same thing, those available for his advance, are examined. A security detachment must be placed in such a position as to cover these roads during the time that the main body is executing its change of direction.

In making the change of direction, the new direction may be parallel to the enemy's front, and a flank march will result. Flank marches are dangerous only when there is no clear idea in the mind of the commander that he is making a flank march and when, if he is attacked by the enemy, it comes as a surprise. It is the surprise element that makes this situation dangerous, not the position of the troops, for a marching column can be deployed more quickly towards the flank than toward the front, since the distances are shorter. This holds true only when the march is not conducted too near the enemy and when the space necessary for deployment is retained.

As has been said, a change of direction that causes a flank to be exposed to danger from the enemy, requires

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that that flank be protected by a security detachment. The strength of this security detachment requires special consideration. Its action in furnishing protection is attended with a certain amount of risk. If the detachment is weak, it invites an attack by the enemy when least desired; if it is strong, the rapid movement of the main body in the new direction may be delayed by the necessity of waiting for the security detachment to follow.

The principal duty of the security detachment is to gain time without committing itself to a serious infantry engagement. For this reason there should be assigned to it artillery, whose fire will force the enemy to an early deployment and a slow advance to the attack. The effort is to carry on the fight entirely with artillery. This may also have the advantage of misleading the enemy as to the strength of the security detachment.

If the enemy is advancing on troops that are in the act of executing a change of direction, his movements can best be watched by cavalry, and this is most effectively accomplished from the flank. The bulk of the cavalry should be sent towards the more exposed flank. The other flank should be watched by smaller bodies of cavalry, such as platoons and patrols. The nearer the hostile infantry approaches, the more will the cavalry close in on the flanks of the security detachment.

The security detachment should ordinarily be allowed to make its own arrangements for taking up a position, but it may be directed to hold fast until further orders.

In making a change of direction, the requisite precautions are careful reconnaissance and prompt transmission of information to subordinate commanders to keep them alert and ready for deployment towards the flank. An attack by the enemy during the change of direction will always be troublesome, for it will be almost certain to cause delay, which under such circumstances, may have far reaching consequences.

If the enemy is not moving, or occupies a position, the situation of the command that is changing direction will be somewhat less awkward, owing to the fact that it will

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take the enemy a certain length of time to put his troops into motion.

If the enemy is in motion, the safe execution of a change of direction becomes more difficult. In such a situation there is often no alternative but to attack him with a part of the command while the remainder changes direction. The danger of following this line of action is that the entire command may become involved at an unfavorable time or place.

When a change of direction is made, some suitable position in the direction of the enemy should be selected and occupied by the advance guard to cover the movement. If there is danger from the direction of the former front, the advance guard may continue its march as a flank guard, a new advance guard being pushed out from the main body. For making such a movement, two roads at a suitable distance apart are required.

In making a change of direction it is well, if practicable, to avoid counter-marching troops, especially artillery.

The safety of the trains must be carefully considered. If the detachment is acting under orders to join the main body for battle, its trains may well be sent by the shortest practicable route, escorted if necessary, to join the trains of the main body, or to some other safe place. If danger is anticipated from the former front, now the flank, the trains should preferably be moved on a parallel road on the unexposed flank.

It has been seen that protection for the command must be provided while the change of direction is being made, and that this protection may be furnished by the advance guard or by a special force designated for the purpose.

The covering force will ordinarily take up a position in readiness or go into a defensive position.

A position in readiness will be taken by the advance guard when the information of the enemy is too indefinite or his intentions are too uncertain to permit of more definite action. The position selected should preferably be near an important crossroad, since this facilitates movement in any direction. Cover under which the troops may be massed out of view of the enemy is very important.

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On the other hand, a defensive position will be taken up when definite information of the direction of the enemy's advance is available, and as late as possible while still leaving sufficient time for the troops to occupy the position.

In an abstract case it is impossible to express in figures a maximum distance from the main body at which such a covering force should operate. The maximum distance will depend on the length of the main column or the time necessary for it to effect the change of direction.

The minimum distance is fixed. If the enemy is armed only with small arms, the distance must be greater than the effective range of these weapons. If he is equipped with artillery, the distance must be greater than the effective range of the guns that he has present and available for use.

The details of taking up a position in readiness or a defensive position are discussed elsewhere and will not be brought out here.

A concrete case will now be considered, with a view to illustrating some of the general statements that have been made.

Maps: General Map, Gettysburg-Antietam, 1″=10 miles.
Gettysburg-Antietam Map, 1:21120, New Oxford, Bonneauville, Gettysburg, Hunterstown and Arendtsville Sheets.

General Situation:

The Susquehanna River forms the boundary between the Blues, west, and the Reds, east.

On 18 February, 1920, the 1st Division, 1st Blue Army, has advanced in friendly territory, via the Chambersburg and Hanover Roads towards Brushtown, to drive back a hostile force that had been reported to be advancing from Columbia on Hanover.

Special Situation (Blue):

General A, with a command consisting of:

1st Squadron, 1st Cavalry.
1st Battalion, 1st Light Artillery.
1st Brigade.
4th Ambulance Company

has been detached from the division with orders to march via Goldenville—Hunterstown—526 road on New Oxford,

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observing towards the crossings of the Conewago. The march formation of the detachment on 18 February, 1920, is as follows:

INDEPENDENT CAVALRY

Major B

1st Squadron, 1st Cavalry (less one platoon).

ADVANCE GUARD

Major C

One platoon, Troop A, 1st Cavalry.
1st Battalion, 1st Infantry.
Machine Gun Company, 1st Infantry.
One section Stokes mortars, one section one-pounders.
One platoon Ambulance Detachment, 4th Ambulance Company.

Distance, 1000 yards.

MAIN BODY IN ORDER OF MARCH

1st Infantry (less two battalions, less detachments).
2d Machine Gun Battalion.
1st Battalion, 1st Light Artillery (less combat train).
3d Battalion, 1st Infantry.
2d Infantry.
Combat Train, 1st Battalion, 1st Light Artillery.
4th Ambulance Company (less detachment).
Field trains combined and ordered to follow without distance.

As the head of the reserve of the advance guard halts 100 yards west of J. Bell (355.3—757.0) for the 10:00 AM rest period, General A, with staff rides up to that point and is handed the following message just received by the advance guard commander:

1st Sq, 1st Cav,
Farm house, 100 yards northeast of road junction 569 (359.5—757.0).
18 Feb 20, 9:40 AM.

General A,
By mounted messenger.
(Received 10:00 AM.)

No enemy at crossings of CONEWAGO west of here. Encountered hostile cavalry troop here, drove it back on NEWCHESTER. Estimated regiment of infantry going into position in woods on hill 573 (362.1—758.4) and hill 572 (362.8—758.2). Inhabitants report that a Red regiment with artillery passed through HAMPTON going towards NEWCHESTER this morning. My squadron is now in position near road junction 569.

B,
Maj.

When General A had read the above message he was handed the following one:

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1st Div,
GETTYSBURG, PA.,
18 Feb 20, 9:40 AM.

General A,
By radio, partially coded.
(Received 10:05 AM.)

Enemy encountered in force west and south of SQUARE CORNER. Division will attack. March your command on BONNEAUVILLE. Orders later.

Z,
C of S.

Required:

(1) General A's decision.

(2) Orders as actually issued by General A.

A Solution

First Requirement:

General A decides to change direction and march his detachment on Bonneauville; to send a left flank guard of one regiment of infantry (less one battalion, less detachments), one brigade machine gun company, one battery of artillery and one troop of cavalry to hold the Reds at Newchester; to send the cavalry squadron (less one troop) to the south as independent cavalry to get contact with enemy; and to send the field trains to road junction 586 (east of Gettysburg on the York Turnpike) via road junction 488 (north of Gettysburg on Carlisle Road).

Second Requirement:

General A issues the following orders:

Verbally to Lieutenant X, his aide:

"Take a side car and direct the commanding officer, 1st Infantry, to move his rear battalion to the head of the main body and to report to me without delay at J. Bell farm house.

"Also direct the commanding officer, 2d Infantry, to have his leading battalion follow the rear battalion of the 1st Infantry and to close his regiment up on the artillery. Orders will follow."

Verbally to the commander of the brigade machine gun battalion:

"Attach one machine gun company to the 1st Infantry. Hold the remainder of your command in place until further orders."

Verbally to the commanding officer, 1st Battalion, 1st Light Artillery:

"Attach one battery to the 1st Infantry. Hold the remainder of your command in place until further orders."

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Verbally to the commanding officer, 1st Infantry, when he reports:

"Our division has encountered the enemy in force west and south of Square Corner and will attack. A hostile detachment, estimated at one regiment of infantry, with artillery and a troop of cavalry attached, is near Newchester. The 1st Squadron, 1st Cavalry, has defeated the hostile cavalry near crossroads 594 and driven it back. Our cavalry is now in position near road junction 569. This command will march on Bonneauville and join the division.

"Your regiment (less 3d Battalion, one section Stokes mortars, and one section one-pounders) reinforced by one company from the brigade machine gun battalion, one battery, 1st Light Artillery, one troop, 1st Squadron, 1st Cavalry and one platoon, Ambulance Detachment, 4th Ambulance Company, will constitute a left flank guard and will take up a position in the vicinity of crossroads 594 and prevent the further advance of the Red detachment. Orders will follow."

General A then turns to the stenographer:

"Take down this dictation."

Det 1st Div,
J. Bell farm house,
18 Feb 20, 10:20 AM.

Field Orders
No 2

Map: Gettysburg, 1:21120.

Troops

(a) Independent Cavalry
Maj B
1st Sq 1st Cav (less 1 tr)

(b) Advance Guard
Maj E
3d Bn 1st Inf
Co B 2d MG Bn
1 sec SM's
1 sec 1-pdrs

(c) Main body—in order of march:
Hq 1st Brig
1st Bn 2d Inf
2d MG Bn (less 2 cos)
1st Bn 1st LA (less 1 btry)
2d Inf (less 1 bn)
C Tn 1st Bn 1st LA (less 1 btry)
4th Amb Co

(d) Left Flank Guard
Col D
1 troop 1st Cav

1. Our division has encountered the enemy in force west and south of Square Corner. A hostile detachment estimated at one infantry regiment with artillery and one troop of cavalry is near Newchester. The 1st Cav defeated the hostile troop near crossroads 594 and drove it back. Our division attacks.
2. This command will change direction and march on Bonneauville to join the division. Former march conditions now cease.
3. (a) The independent cavalry on being relieved by left flank guard will move via Cedar Ridge toward Centennial. Early information of the position of the enemy's right and the location of the left of our division will be gained.
   (b) The advance guard will clear road junction 549 at 11:30 AM and will march via 549—542—556—592—602—517—566 road on Bonneauville.
   (c) The main body will follow advance guard at 1000 yards.
   (d) The left flank guard will take up a position in vicinity of crossroads 594 to prevent the Reds near

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1st Inf (less 1 bn, less dets)
Btry A 1st LA (with C Tn)
Co A 2d MG Bn (with Co C Tn)

NEWCHESTER from interfering with march of the detachment.

4. The field train will turn to the right at crossroads 608 and march to road junction 586 via road junction 488, where it will await further orders.
5. Messages to head of main body.

A,
Brig Gen.

Distribution:

1. CG 1st Div
2. CO 1st Inf
3. CO 2d Inf
4. CO 1st Bn, 1st LA
5. CO 2d MG Bn
6. CO 1st Sq 1st Cav
7. CO 3d Bn 1st Inf
8. 4th Amb Co
9. CO F Tns

(D-2) CHANGE OF DIRECTION—MAP PROBLEM

CAPTAIN J. A. MCANDREW,
Infantry

Map: Gettysburg, 1:21120.

General Situation:

The Conewago is the boundary between the Reds, north, and the Blues, south. War has been declared. The 1st Blue Division has completed its mobilization and has been ordered north to protect the crossings over the Conewago while the Blue army is being mobilized south of the Potomac. The Blue mobilization will be completed March 23, 1920.

Special Situation:

A detachment consisting of: the 1st Brigade, the 1st Light Artillery, the 1st Battalion, 1st Engineers, Troop A, 1st Cavalry, and the 1st Ambulance Company under the command of General B, commanding the 1st Brigade, has been detached from the 1st Division and ordered to march via the Emmitsburg— Knoxlyn road on Mumasburg to protect the crossings over the Conewago west of Table Rock.

General B's detachment camped 22-23 March, 1920, at Emmitsburg with cavalry patrols to the north. The detachment continued its march the next morning on the Emmitsburg 483—493—511 — 583 — 558 — Knoxlyn — Seven Stars—Mummasburg road in the following order of march:

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ADVANCE GUARD
Major C

Troop A, 1st Cavalry (two platoons patrolling in front of the advance guard, one platoon with the support of the advance guard).
1st Battalion, 1st Infantry.
Machine Gun Company, 1st Infantry.
One section Stokes mortars.
One section one-pounders.
Distance to main body, 1000 yards.

MAIN BODY IN ORDER OF MARCH

Brigade Headquarters.
1st Infantry (less two battalions, machine gun company, one section Stokes mortars, one section one-pounders).
2d Machine Gun Battalion.
1st Light Artillery (less combat trains).
3d Battalion, 1st Infantry.
2d Infantry.
1st Battalion, 1st Engineers.
Light Artillery Combat Train.
Ambulance Company No. 1.
Field trains combined and following detachment without distance.

General B, at the head of the main body, receives messages as follows:

Officer's Patrol,
SEVEN STARS,
23 March 20, 7:50 AM.

MESSAGE
No 1
By mounted messenger.
Received 9:00 AM.

Hostile force, strength unknown, reported north of BRYSONIA. I am going forward to reconnoiter.

Y,
Lt.

Officer's Patrol,,
Hill 1008, west of ARENDTSVILLE,
23 March 20, 8:50 AM.

MESSAGE
No 2
By mounted messenger.
Received 10:00 AM.

A Red force, estimated as one infantry regiment with artillery is marching south on road east of BRYSONIA towards ARENDTSVILLE. Point of advance guard near road junction 720. Will keep enemy under observation.

Y,
Lt.

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1st Division,
TANEYTOWN,
23 March 20, 9:50 AM.

MESSAGE
No 3
By radio, partially coded.
Received 10:05 AM.

A Red column of all arms is advancing south through HAMPTON on NEWCHESTER. A second Red column is reported north of HEIDLERSBURG advancing on PLAINVIEW. The 1st Division will concentrate in the vicinity of GRANITE HILL STATION—GULDENS. March your detachment provisionally on GRANITE HILL STATION.

Z,
C of S.

At 10:00 AM 23 March, 1920, the head of the main body of General B's command has halted for the hourly rest at the farm house 1 mile north of road junction 705 (341.3—746.8). General B and his staff, the artillery commander and the machine gun battalion commander, are at the head of the main body.

Requirements:

(a) General B's decision and detailed plan of action.

(b) Orders as actually issued by General B in carrying out his decision.

An Approved Solution

DECISION

General B decides to change direction and march in two columns on Granite Hill Station and to protect his left flank by a flank guard.

DETAILED PLAN

Main Column—One platoon Troop A, 1st Cavalry, 3d Battalion, 1st Infantry, 2d Infantry, 2d Machine Gun Battalion (less one company). Route of march: to turn to the right at crossroads 588 and to march via the Hagerstown Road and the York Turnpike to Granite Hill Station.

Right Column—1st Battalion, 1st Engineers, 1st Light Artillery. Route of march: 705—609—533—Pitzer S. H.—580—Gettysburg—Hanover road to road junction 546.

Left Flank Guard—1st Infantry (less 3d Battalion, one section Stokes mortars, one section one-pounders), Troop A, 1st Cavalry (less one platoon), Battery A, 1st Light Artillery, with its combat train, Company A, 2d Machine Gun Battalion, with its combat wagons. Route of march: to march to a position northeast of Seven Stars to protect the march of the main body.

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Trains—1st Light Artillery combat train (less one battery combat train), 1st Ambulance Company, field trains. Route of march: via 493—532—547—575—476—529—516—Hoffman—540—469—491—Two Taverns, and there await further orders.

ORDERS

10:10 AM

Verbally to Major, 2d Machine Gun Battalion:

"Attach one machine gun company to the 1st Infantry. March the remainder of your battalion to the right at crossroads 558 on the Hagerstown Road. When the battalion has cleared crossroads 558 halt it and await orders."

Verbally to Colonel, 1st Light Artillery:

"Attach one battery to the 1st Infantry. March the remainder of your command via road junction 705 to road junction 609 where it will halt off the road and await further orders."

10:12 AM

Verbally to Lieutenant P, his aide:

"Take a side car. Direct the Colonel, 1st Infantry, to report to me here for orders. Direct the infantry in rear of the artillery, and the engineers to continue the march on crossroads 558. Direct the artillery combat trains, the ambulance company and the field trains to halt and await orders."

10.17 AM

Verbally to Colonel, 1st Infantry:

"A Red column of all arms is advancing south of Newchester. A Red column is reported advancing south on Plainview. A Red force estimated as an infantry regiment with artillery is moving south on Arendtsville. Our division concentrates in the vicinity of Granite Hill Station—Guldens. This detachment changes direction and marches on Granite Hill station via the Hagerstown Road and the York Turnpike. Former march conditions now cease. Your regiment (less 3d Battalion, one section Stokes mortars, one section one-pounders) and reinforced by Company A, 2d Machine Gun Battalion, Battery A, 1st Light Artillery, and Troop A, 1st Cavalry (less one platoon), as left flank guard will prevent the Red force reported north of Arendtsville from crossing the ridge extending from Texas southwest to the vicinity of Seven Stars. Send the platoon (Troop A), which I have excluded from your command to report at crossroads 558 for orders. Messages to the head of the main body. Written orders later."

General B then issues the following field order:

Det 1st Div,
1 mile north of road junction 705,
23 March 20, 10:35 AM.

FIELD ORDERS
No 2

Map: Gettysburg, 1:21120.

Troops

(a) Advance Guard
Maj S
1 plat Troop A 1st Cav

1. A Red column, all arms, is advancing south on NEWCHESTER. A Red column is reported advancing south on PLAINVIEW. A Red force estimated as one infantry regiment with artil-

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3d Bn 1st Inf
1 sec SM's
1 sec 1-pdrs
Co B 2d MG Bn

(b) Main body—in order of march
Hq 1st Brig
1st Bn 2d Inf
2d MG Bn (less 2 cos)
2d Inf (less 1 bn)

(c) Right Column—in order of march
Col E
1st LA (less 1 btry)
1st Bn 1st Engrs

(d) Left Flank Guard
Col D
Troop A 1st Cav (less 1 plat)
1st Inf (less 3d Bn, 1 sec SM's and 1 sec 1-pdrs)
Co A 2d MG Bn
Btry A 1st LA

Trains—in order of march
Maj T
LA C Tn (less Btry C Tn)
1st Amb Co
F Tns

lery is moving south on ARENDTSVILLE.

Our division concentrates in the vicinity of GRANITE HILL STATION—GULDENS.

2. This detachment changes direction and marches on GRANITE HILL STATION. Former march conditions now cease.
3. (a) The advance guard will turn to the right at crossroads 558 and march via HAGERSTOWN ROAD and YORK TURNPIKE to GRANITE HILL STATION. The advance guard will clear road junction 519 at 12:30 AM.
   (b) The main body will follow the advance guard at 800 yards.
   (c) The right column will march at 12:00 noon via 609—533—PITZER S. H.—580—GETTYSBURG road—546. The position of the column will be reported every thirty minutes.
   (d) The left flank guard will move to a position in readiness, northeast of SEVEN STARS, with the mission of preventing the Red force, north of ARENDTSVILLE, from crossing the ridge extending from TEXAS southwest to the vicinity of SEVEN STARS.
4. Trains will march via 493—532—547—575—476—529—516—HOFFMAN—540—469—491—TWO TAVERNS. On arrival at TWO TAVERNS will halt and await orders.
5. Messages to the head of the main body.

B,
Brig Gen.

Copies to:

CG 1st Div
Brig Staff
CO 1st Inf
CO 2d Inf
CO 1st LA
CO 2d MG Bn
CO 1st Bn 1st Engrs
CO Amb Co No 1
CO 3d Bn 1st Inf
CO F Tns
CO LA C Tn

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CHAPTER II

Halts

(A) PLACING A DIVISION IN CAMP AND BILLETS

CAPTAIN FAY W. BRABSON,
Infantry

Maps: Pennsylvania and Maryland Geological Survey Map, 1:62500, Chambersburg, Hagerstown, Fairfield and Emmitsburg Quadrangles.
Gettysburg Map, 1:21120 (corresponding sections).

General Situation:

The meridian 77° 30′ west longitude (Pennsylvania and Maryland Geological Survey Map) forms the boundary between two countries, West (Red) and East (Blue), whose diplomatic relations have become strained. Both nations have mobilized troops near the boundary line. The laws of both nations permit billeting on inhabitants in peace times as well as war. In the Red nation, quantity production of motor transport will not be adequate for at least a month.

Special Situation (Blue):

The 1st Blue Division is in camp between Fourpoints, Emmitsburg and Bridgeport. This division is composed of seasoned troops excepting the 2d Brigade which has been mobilized just one month. At 7:00 AM, 15 April, 1919, General A, commanding the 1st Blue Division, received information from the Blue War Department that a declaration of war by the Reds was momentarily expected; that hostile forces of all arms were reported to have crossed the boundary and intrenched on Blue soil in the Waynesboro Pass. At 10:00 AM, General A was ordered to proceed without delay to the vicinity of Highfield, drive out the Reds and secure the western exit of the pass.

At 11:00 AM, General A sent forward from Emmits-

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burg his attached cavalry (one squadron with trains and with radio section) with the mission of gaining touch with the enemy and reporting his strength and dispositions. Later General A ordered the observation squadron, air service, to make a reconnaissance of Highfield. If the observation squadron commander were convinced that the Reds were actually on Blue soil, the reconnaissance was to be continued toward Waynesboro. With the rest of the division General A marched on the Emmitsburg Turnpike via Fountain Dale. The slower moving 2d Brigade would join the column at Zora. The field trains accompanied the troops. At 3:30 PM reports were received from the cavalry that Highfield and vicinity was clear of the enemy; that hostile patrols had been encountered at Quirauk School and at Lantz, and that the presence of the Reds on Blue soil had been communicated to the observation squadron. At the same hour a message from an airplane stated that small detachments of the enemy had been seen west of Mount Dunlap but that no important hostile movement had been discerned.

Required:

I. Action if any, taken by General A. (See solution later.)

Special Situation (Continued):

The advance continued. At 5:00 PM when the leading elements of the advance guard reached the south edge of Monterey, the Reds opened fire with small arms from a position near the eastern outskirts of Highfield. Reconnaissance through Tollgate to the west revealed a small force of Reds intrenched on the ridge west of Beartown Church.

At the same hour the cavalry, at Sabillasville, reported having driven to the southwest the hostile cavalry patrols previously encountered.

At 5:15 PM General A and the first echelon of division headquarters motored ahead to the advance guard and found at about 5:30 PM that only the point and the advance party had deployed, and that no great amount of firing had oc-

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curred. The advance continued and at 6:00 PM the head of the reserve of the advance guard was 1000 yards due east of Monterey; the head of the main body, about one and one-fourth miles west of Zora.

The order of march and the position of units at 6:00 PM was as follows:

Deployed near Monterey:
Company A, 1st Infantry, and 1st Platoon, Troop A, 1st Cavalry.
In vicinity of Sabillasville with patrols to west and southwest; 1st Squadron, 1st Cavalry (less detachment); cavalry trains and one radio section.
On Monterey—Zora—Emmitsburg—Bridgeport road:
Support ---------- 715 yds.
1st Battalion, 1st Infantry (less Company A).
1 platoon, Machine Gun Co., 1st Infantry.
1 section Stokes mortars, 1st Infantry.
1 section one-pounders, 1st Infantry.
Distance ---------- 800 yds.
Reserve ---------- 5180
Headquarters, 1st Brigade ---------- 40
1 radio section ---------- 20
1st Infantry (less 1st Battalion and detachments) ----------2125
Battery A, 1st Light Artillery---------- 535
Company A, 1st Engineers ---------- 225
4th Ambulance Company ---------- 340
4th Field Hospital Company ---------- 220
Field trains (advance guard) ----------1240
1st Field Signal Battalion (less detachments) ---------- 435
Distance ---------- 880
Main body in order of march:
Division headquarters (less 2d echelon)- 220
2d Infantry ----------2965
2d Machine Gun Battalion ----------1760
1st Field Artillery Brigade (less horsed section field trains, less 3d Heavy Artillery and less Battery A, 1st Light Artillery) ----------6985
Division headquarters (2d echelon)---- 440
Field Train, 2d Infantry ---------- 905
Field Train, 2d Machine Gun Battalion-- 235
Field Train (horsed section) 1st Field Artillery Brigade (less detachment)-1310
In camp at Bridgeport, to join above column:
3d Heavy Artillery----------5720

On Zora—Fourpoints—Bridgeport road with head of column at road junction one and one-half miles southwest of Emmitsburg:
2d Brigade (less field trains) ----------7730
1st Engineers(less field train and less Company A) ----------1460
In camp at Fourpoints:
1st Machine Gun Battalion and 1st Observation Squadron.
In several camps ready to march:
Remainder of field trains.

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Parked at Emmitsburg:
Division trains (less detachments).
One radio section.

Required:

II. General A's orders, after 5:30 PM.

An Approved Solution

I. First Requirement:

Upon receipt of the reports from the cavalry at 3:30 PM, General A decided to issue a warning order, announcing his decision to halt for the night and giving general areas to be reached. In the first echelon, division headquarters, were the chief of staff, assistant chiefs of staff, division engineer, signal officer, commander of field artillery brigade and the message center.

At 3:40 PM the following order was dictated by G3 who had ridden in the car with the chief of staff and had the march table and situation map corrected to date:

1st Div,
EMMITSBURG,
15 April 19, 3:50 PM.

FIELD ORDERS
No 10

Maps: 1:62500, Emmitsburg quadrangle.

The enemy does not occupy HIGHFIELD. Red patrols have been encountered at QUIRAUK SCHOOL and at LANTZ.

The division will halt for the night:

Advance guard (less 4th F Hosp Co) in vicinity of FOUNTAIN DALE.

2d Inf
1st LA (less 1st Bn)
2d MG Bn
} in valley northeast of SABILLASVILLE.

2d Brig
1st Engrs (less Co A)
} in general vicinity of ZORA.

1s FA Brig (less dets 1st LA and less 3d HvA) in general vicinity of COVE HOLLOW.

3d HvA to billets in western part of EMMITSBURG.

4th F Hosp Co at ZORA.

1st MG Bn
1st Obsn Sq
} to remain in present camp at FOURPOINTS.

Division Tns to remain at EMMITSBURG.

Detailed Field Orders follow.

By command of Major General A,

B,
Chief of Staff.

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Distribution:

Div Staff	1st Engrs
CO Adv Gd	1st F Sig Bn
1st Brig	1st MG Bn
2d Inf	1st Obsn Sq
2d MG Bn	Maj X, Cav
2d Brig	CO Tns
1st FA Brig	APM

Copy by wire to Blue War Department.

II. Second Requirement:

1st Div,
Near FOUNTAIN DALE,
15 April 19, 5:40 PM.

FIELD ORDERS }
No 11 }

Maps: 1:62500, Emmitsburg and Fairfield Quadrangles.

1. Our advance guard has been fired upon by small arms from near eastern outskirts of HIGHFIELD. Our patrols found a small Red force intrenched on the ridge west of BEARTOWN CHURCH. Our cavalry met small hostile patrols at QUIRAUK SCHOOL and at LANTZ and drove them to the southwest.
2. This Division will halt for the night and go into camp.
3. (a) The cavalry squadron will withdraw when relieved by the outpost of 2d Infantry, to a camp behind the outpost of 2d Infantry. It will continue throughout the night special observation of roads from the west into HARBAUGH VALLEY.
   (b) The troops composing the advance guard reinforced by remainder of 1st Bn 1st LA will camp on MINEY BRANCH just west of FOUNTAIN DALE. The advance guard commander, with such portions of his command as he deems necessary, will establish an outpost to cover the line road junction at 330.—742.9—PINE MTS.—hill east of RJ 1339, inclusive.
   (c) The 2d Inf, the 2d MG Bn and the 1st LA (less 1st Bn) will camp along creek about 1½ miles northeast of SABILLASVILLE. Colonel D with such elements of this command as he decides are necessary will establish an outpost to cover the line hill east of RJ 1339 (exclusive)—SABILLASVILLE—point 329.8—731.3.
   (d) 2d Brig and 1st Engrs (less Co A) will camp in southeastern angle formed by crossroads 1000 yards south of ZORA. 4th F Hosp Co at ZORA comes under this command for administrative purposes.
   (e) 1st FA Brig (less 3d HvA and less 1st LA) will camp north of highway opposite COVE HOLLOW. 3d HvA will billet in EMMITSBURG west of the town square.
   (f) 1st MG Bn and 1st Obsn Sq will remain in camp at FOURPOINTS.
   (x) In case of attack the outpost position will be held.
4. Field trains will join their respective units in camp.
5. (a) Plan of signal communication: no change.
   (b) Signal communications will be established with 1st Brigade, 2d Brigade, EMMITSBURG, the cavalry squadron and FOURPOINTS.
   (c) Division headquarters will open at FOUNTAIN DALE at 6:30 PM.

A,
Major General.

Distribution:
Same as Field Orders No 10.

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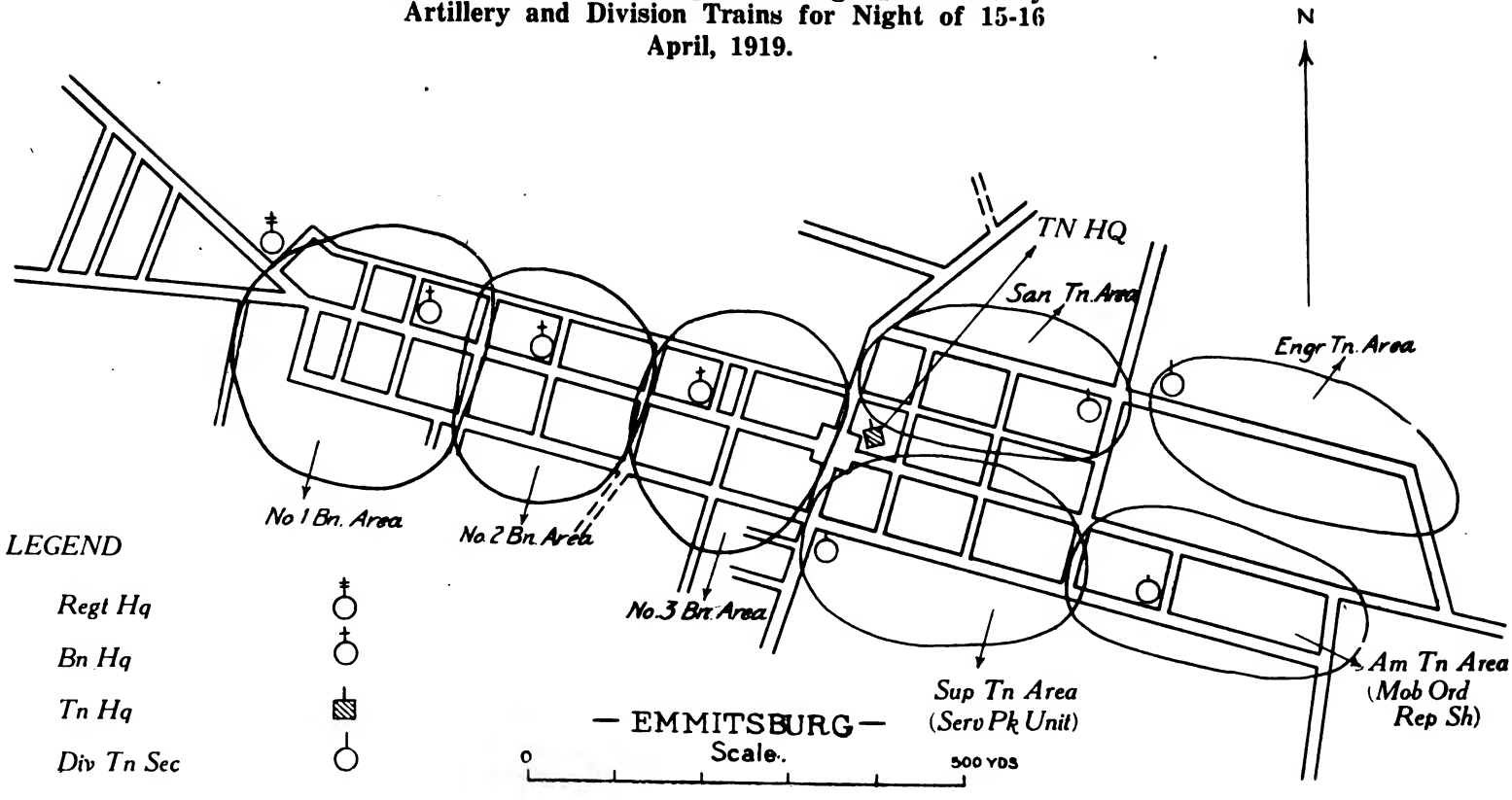
Sketch Showing Billeting areas assigned to 3d Heavy Artillery and Division Trains for Night of 15-16 April, 1919.



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1st Div,
FOUNTAIN DALE,
15 April 19, 7:30 PM.

ADMINISTRATIVE ORDERS
No 7

To accompany FO No 11, 1st Div.

Maps: 1:62500, Emmitsburg quadrangle.

I SUPPLY:

A. *Railhead*: EMMITSBURG.

B. *Rations*:

Distributing points for April 16th as follows:

On north and south road just north of point 331.0—736.5.

Hq 1st Brig, 1st Inf and attached troops____12:00 noon
1st Sq 1st Cav, 2d Inf and attached troops____ 1:00 PM.
1st FA Brig (less 3d HvA and less Dets)____ 2:00 PM.

At railhead:

2d Brig and attached troops_____ 9:00 AM.
1st Engrs (less Co A) _____10:00 AM.
3d HvA _____10:20 AM.
1st MG Bn _____10:40 AM.
1st Obsn Sq _____10:50 AM.
Div Tns (less Det) _____11:00 AM.

C. *Ammunition*:

Refilling point: Division dump, EMMITSBURG.

Distributing Stations:

Artillery, Infantry } To be announced later.

II. EVACUATION:

A. *Men*:

Field Hospitals:

Non-transportable and seriously wounded } To 2d Field Hospital Company at EMMITSBURG.

All other cases } To 3d Field Hospital Company at EMMITSBURG.

B. *Animals*:

Collection station for sick and wounded animals } Mobile veterinary section at LIBERTY MILLS.

Division veterinarian will arrange for evacuation from collection station to railhead via LIBERTY MILLS—EMMITSBURG road.

III. ROADS:

A. *Circulation*: Free on all roads.

B. *Traffic control*: By military police detachments at distributing points commencing one-half hour before distribution. By military police on main east and west roads within division zone west of EMMITSBURG.

IV. MISCELLANEOUS:

Mail will be distributed to field trains commencing the 16th instant.

V. TRAINS:

The commander of trains will release two field hospital companies for evacuation service as set forth in par II A of this order.

Division train parks are as shown in attached sketch.

CO 3d HvA to be town commandant with office at city hall of EMMITSBURG.

Field trains not already with organizations will join them at respective camps.

By command of Major General A:

B,
Chief of Staff.

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Distribution:
Division Staff.
Brigade Commanders.
All regimental and separate organization commanders.
Commander of Trains.

REASONS IN BRIEF

(a) It is approximately 15 miles from Bridgeport, the eastern boundary of the camping area, 1st Blue Division, to Highfield. About 5 miles of this route, just before reaching Highfield, lies through mountain passes, between steep wooded slopes that would not permit the ready deployment and effective use of large amounts of field artillery; accordingly only one battery has been assigned to the advance guard. This facilitates the more rapid deployment of foot troops on whom the brunt of mountain fighting falls.

(b) The possibility of meeting superior forces in Waynesboro Pass necessitating entrenchments, the ease with which the road could be blocked, and the type of bridges enroute make it advisable to have an engineer company with the advance guard, from which it can move quickly to the place needed. The motorized section of the engineer train can be rushed within a short time with technical supplies and in emergency with entrenching tools to any point where needed.

(c) Early cavalry reconnaissance showed General A that Highfield was not occupied by the Reds; however, Red patrols were found in the passes to the south. Later, small forces were encountered in the northern passes but towards the western exits. Wherever found the Red troops were in small force and were not aggressive. For General A to attempt the offensive so late in the day in the face of forces whose strength is not yet developed would be unwise. It will be impracticable because of the long march for the Blue division to force the western exits of the mountain passes tonight.

(d) General A might camp his command along Miney Branch and along the roadside wherever the division should find itself upon receipt of halt orders; but this would stretch out the division unduly. His mission calls for an attack on the Red forces and he must therefore place the division tonight so as to facilitate best whatever operations may

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be called for tomorrow. General A therefore decides to push well forward today and to utilize the halt order to form the veteran infantry troops in two columns well forward, and to hold the other infantry brigade near Zora.

(e) Owing to the length of columns the advance guard elements have their field trains well forward. As the troops started from camp late their haversacks contain full rations and the field trains are full. Such field trains as are not already with their units will join. The distances from railhead are such that the supply train can run out quickly with one day's rations before any move tomorrow. The division trains (less detachments) are held at Emmitsburg.

(f) At first only one battery of artillery is placed with the advance guard. However, when it is found that the enemy is in the passes to the south of Highfield and when it is decided that the one column shall be broken into two columns, General A arranges ultimately to have one battalion of light artillery with each advance column. The other regiment of light artillery is held centrally, available to help either of the advance forces promptly. The heavy artillery is billeted at Emmitsburg from which point there are good roads leading to every part of the front.

(g) The observation squadron and division machine gun battalion are held at their old camp at Fourpoints. A good landing field is available there for the squadron. The division machine gun battalion could reinforce any part of the line promptly.

(h) Information of the enemy arrived in such a way that it was deemed advisable to send out a warning order. While the march continues the combined order is being prepared and when the new information of the enemy arrives about 5:30 PM this is put in its proper place and the order quickly finished and distributed. The administrative order can follow soon, because most of the information necessary for this particular one is at hand.

* * * * * * * *

The following notes on the subject of *Shelter of Troops* may be useful as references.

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SHELTER

Arrangements for sheltering troops should as far as practicable be made before their arrival. These preparations are made by quartering parties. These parties should be sent out when practicable whether the troops are to be sheltered in billets or in camp.

These quartering parties select the camp site or billeting area when this has not already been definitely determined, apportion the area among the units of the command and the services and take the necessary measures that will insure the command functioning in all particulars with least interruption. The subject will be considered under the subheads: billeting, cantonments, bivouacs and camps.

BILLETING

Billeting is the assignment of troops to public or private buildings for quarters *(Field Service Regulations)*. The definition in General Orders No. 50, 1918, American Expeditionary Forces, is "where troops are put in the dwellings of the inhabitants."

Constitutional Amendment. "No soldier shall in time of peace be quartered in any house without the consent of the owner, nor in time of war but in a manner to be prescribed by law."

Continental nations uniformly permit billeting. In France there was organized by General Order 50, 1918, under Commanding General, Service of Supply, a service of renting, requisition and claims. One of the duties of this service was to provide for and supervise the billeting and quartering of the United States forces in France. Claims for damages to billets which could not be adjusted by the town major were forwarded to this service for settlement.

For each area or camp of considerable extent, a zone major was detailed. He was responsible for the construction work done in the cantonments, for their improvement and maintenance, and was responsible for billeting troops when they arrived in the zone.

A town major, or acting town major, was appointed under the zone major for each village, or cantonment in which troops were to be billeted. An acting town major was designated by the commanding officer of troops entering an area; if the Service of Supply had not previously appointed a town major for that area. The town major normally would have opened an office before any troops arrived. He would arrange with the mayor for a list of accommodations available in the town, and keep a complete and accurate record of each building showing its capacity for officers, men, store houses, animals and the usual needs, such as officers' messes, etc., that would arise. He would mark such buildings as were unfit for occupancy. He would have a supply of rough maps of the village for use of incoming troops. When informed of the strength of incoming troops, he would make detailed assignment thereof. He would have accurate information as to the water supply, watering places, parking spaces for wagons, etc. He would be charged with erecting signs within the village, with disposal of refuse, construction of latrines, baths, washing and incinerator facilities, the marking of buildings with capacity, etc. If necessary the town major controlled traffic regulations and was responsible for fire protection of the village.

Upon arrival in a village the quartering officer reported to the town major the strength of the units to be billeted. The town major in turn furnished a written assignment to billets. The quartering officer and his party then visited the billets, arranged details of assignment, met units on arrival, and conducted them to their billets. In arranging billets each unit was kept together as far as possible. A company occupied both sides of the street, and normally the company officers were in the same block with their units. A guard house

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was established usually at the town hall and some one charged definitely with giving the alarm in case of fire, in case of hostile aircraft or gas.

Quartering Parties in Unorganized Towns

The officer in charge proceeds direct to the proper official (mayor, president, chief of police, etc.), and presents to him the requisition for billets. This officer will inform the official of any special rules that the inhabitants will be required to observe, will ask information as to the existence of any infectious diseases, the character of the water supply, etc., and will give the probable time of arrival of troops. (See I. D. R., 1918, Part II, Pars. 792-821.)

If time permits the local authorities will prepare an order for presentation by the quartering officer to each inhabitant on whom men and horses are to be billeted.

When time is not available the quartering parties will present to the town official a requisition for billets, and request co-operation in allotment of same. This quartering party will roughly allot the accommodations; areas being assigned to the larger units and these in turn allotting certain streets or houses to their units.

General Rules to be Observed in Distributing and Administering Troops

1. Mounted men should be near their horses, guns and wagons.
2. Officers should visit the billets of the men and the stables of the horses at irregular intervals during day and night.
3. If necessary inhabitants should be disarmed and their privileges carefully set forth in orders.
4. Precaution must be taken to prevent the inhabitants conveying information to the enemy, if conditions warrant same.
5. Officers and men must be cautioned against talking of military matters in the presence of the inhabitants, and also against leaving secret papers where they could be seen or taken.
6. Depending upon the location of the enemy front line, villages should be prepared for defense against surprise, and part of the troops kept in constant readiness.
7. An alarm signal and places of assembly should be arranged for in the event that troops are required to turn out suddenly.
8. An important general rule is that troops should be billeted so that no element will be forced to retrace their steps.
9. Note clearly on the papers given each unit commander: the distributing point, the new command post, the location of station for evacuation of wounded (if known at the time).
10. Any special instructions regarding concealment within billets to prevent hostile air reconnaissance discovering a concentration of troops.
11. Depots should be near good roads.
12. Dismounted troops should be nearest the water supply.
13. When billets are limited, mounted troops have precedence over dismounted troops.
14. Staffs and hospitals have first claim on billets. Hospitals should be given a quiet sanitary position where possible.
15. When a column is halted for the night only, the troops composing it should not be billeted more than a mile or two from the next day's line of march.

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Capacity of Areas for Billeting Troops

The following rules will apply (close billets):

1. For one week a given area will house and feed a force equal to twice the population.

2. Billets without subsistence may be estimated at about ten men per inhabitant in rich farming country, and at about five or six per inhabitant in towns and villages.

The capacity of any village for billeting purposes will depend upon many considerations such as the size of the village, the time of year, whether the community is an agricultural one, and whether the billets are to be close billets or extended billets. As a rule in comfortable billets only about five soldiers to ten members of the village is proper. In the Rhine towns this number could be increased up to eight soldiers to ten population. In the fall of the year when the crops have been gathered and the barns filled the number of available billets is greatly decreased. A larger city can take a higher proportion of soldiers because as a rule the structures available are of a greater capacity relatively; that is there are more large warehouses, etc.

Quartering Parties—*Organization and Duties*

The composition of a quartering party will vary, depending upon the time and transportation available, and whether the command is on the march, in campaign or only changing station or billeting area. However, a division should have standing orders for the movement of the quartering parties of the different elements of the division, modifying them to suit the need of the particular case.

A quartering party of a regiment on a march will comprise: a quartering officer, a supply officer, a medical officer, a representative from each battalion, the mess sergeant and supply sergeant of each company. The party carries sufficient rations to assure an ample supply until the troops arrive. Where practicable the party should arrive 24 hours before the troops in case billeting is contemplated. Interpreters should be taken along if their need is probable.

The quartering party apportions the space so as to make the men as comfortable as the quarters available, and the distance from the enemy will permit. The quartering zone should be as large as possible. If extended along the axis of the entire length of column, there will be a maximum of marching forward of the entire force and a minimum of fatigue.

In war of movement the leading echelons will have to put up with any shelter they can get. It is the duty of the staff personally to see that such accommodation as is available is utilized to the fullest extent, and improved wherever possible.

Quartering where possible should be arranged by units, as it facilitates movement and command. After reconnaissance it may be necessary to expand the quartering area, and it is the duty of the staff of the unit to secure the additional area.

The location of headquarters is important. Convenience in receiving messages demands that it be on an important road, and at the proper distance from the front.

Strict attention must be paid to the problems of sanitation and water. Within twelve miles of the front protection against air bombardment should be provided.

The halt order normally gives the general area to be occupied by each brigade, or each column. The quartering officers of brigade and special units, at once proceed to reconnoiter the area and receive their allotment of accommodations from the town major.

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The advance guard should be met by the quartering parties, and all troops should be guided to their respective new billets.

The staff work involves great care and attention to proper tactical grouping, to careful location of headquarters and lines of signal communications, to proper arrangements for water for men and horses, that sanitary considerations are assured proper attention through frequent inspections, that protection is given dumps of property left by other organizations, that satisfactory use is made of intermediaries, such as town majors, interpreters, etc.

When the opposing forces are stationary, and troops in the lines are relieved at stated intervals, the problem of billeting is very simple, as the troops being relieved will as a rule merely move into the billets vacated by the troops relieving them. When troops are moving, however, the problem becomes more difficult. The secret of successful billeting in such a case is decentralization. As soon as the divisional area is allotted it is subdivided at once by brigades and regiments right down to battalion areas. Usually this will be done on the map and any adjustments which will have to be made will be made afterwards, when the actual billeting has been done.

It is, therefore, the duty of every commander to notify his immediate superior of any spare accommodations in his particular area. No regimental adjutant can possibly allot individual billets to the companies of the regiment. He must give to each battalion its area and let the battalion make its own allotment.

It is desirable to get the men off the road and under cover as quickly as possible, and this can be done only if everything is decentralized right down to companies, and each commander helps the other out as regards accommodation. However, care must be taken not to mix units in assigning this extra accommodation, and all changes must be furnished headquarters.

When on the move troops must be quartered with due regard to the march of the next day, i. e., they should be quartered, where possible, in depth. If the column closes up at the end of the next day's march, the result will possibly mean confusion at the next day's start, and will certainly mean delay in getting the troops in rear started.

When troops are to remain only one night in a set of billets, they can be billeted much more closely than would be possible if they were to remain for several days.

Medical officers look after the chlorinating of drinking water, but this does not absolve other officers from watching to see that their men do not drink impure water.

If the company is close together the cooking can be done conveniently in the rolling kitchen. If the company is scattered, it may be necessary for each platoon to look after its own cooking. It is far better, when men are scattered, to establish cooking places for each platoon, than to let the men do their own cooking.

Regimental and battalion commanders are responsible for providing the necessary guards. As a rule every battalion and company headquarters has a guard. In addition to these, there are traffic posts by day and night at important crossroads, or road junctions within the area. These posts are provided by the assistant provost marshal. If, however, the troops are billeted in a country recently vacated by the enemy, it will be necessary to picket all entrances and exits from the area, and the commander of the troops in the area will be responsible for having this done.

All buildings assigned to each particular unit must be located precisely as shown on sketches so as to avoid mistakes and subsequent discussion.

In billets liable to bombardment it is advisable to avoid assembling too many officers in the same building.

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All buildings should be used so as to decrease crowding and the probability of heavy losses. Our sanitary regulations provide for 40 square feet of floor space per man, except in emergency, when temporarily this may be reduced to 17 square feet.

Standing orders must be issued in regard to protection against fire, prohibition of smoking where straw or inflammable material is stored, and that the necessary arrangements are made to keep the billets clean and orderly. This policing must be done at hours that will not interfere with the training.

The usual billeting procedure in the case of a regiment on a march in campaign will be as follows:

The brigade adjutant would ride up and inform the colonel of the general situation and would assign an area in which the regiment would billet for the night. He would inform the colonel as to the location of brigade headquarters and division headquarters, and the disposition of the trains. He would inform the colonel of the hour of march on the following day as soon as it became known.

The colonel would issue from the map his order for proceeding to the billeting area assigned. He would make the general allotment of areas to the different battalions. Later he would require a rough map to be made showing the subdivisions of the regimental area into battalion areas, the location of battalion and regimental assembly places, the location of all headquarters, the location of the combat train, and the sanitary arrangements.

An open space in the battalion area leading to a main road would do as a battalion assembly place, but care must be taken not to block the roads by holding assembled battalions on them. In case of alarm troops must of course fall in outside their billets, generallly on the roads. They must, however, be marched promptly to their assembly places and the road cleared at the earliest possible moment.

Officers commanding battalions and other units of the regiment will take steps to insure that billets are left clean. Billets are always inspected by an officer after they have been vacated, and before any other unit takes possession, or before the inhabitants enter the billet.

Cantonments

When troops occupy buildings in towns or villages or huts especially erected they are in cantonment. The definition of a cantonment in General Order 50, 1918, American Expeditionary Forces, is: "Where troops are sheltered in temporary wooden barracks." Cantonments often develop through improvement of camps, huts or temporary buildings taking the place of tents. During a prolonged suspension of hostilities, the occupation of enemy territory and at sieges, cantonments are advantageous, especially in cold or wet weather. *(Field Service Regulations,* paragraph 233.)

In peace time public buildings may be used for temporary shelter only in case of greatest emergency. Private buildings will not be forcibly entered by troops except to prevent destruction or to protect life. In war time temporary use may be made of public buildings in our own country when absolutely necessary; say in the care of wounded. Seizure will not be resorted to except in imperative demands of humanity. In a hostile country public and private buildings are available for use of troops. Families should not be removed from their residences unless it is unavoidable.

Bivouacs

When resting on the ground without shelter other than shelter halves, troops are said to be in bivouac. When troops remain in de-

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ployed formation after battle, awaiting resumption of hostilities, they will generally bivouac on, or near the position they occupy. The readiness for action assured by occupying a bivouac is purchased at the expense of the health and efficiency of the troops concerned. In so far as the comfort of men and animals are concerned, the worst billets are generally better than the best bivouacs. The latter are resorted to only:

1. When troops are required to be in readiness for instant action.
2. When for any reason large masses are held concentrated.
3. When neither billets nor tents are available.

The troops seek the sheltered side of buildings and such favorable places on roadsides as they can secure. They will use their shelter tents if the tactical situation permits and if observation from the air does not prevent same. It may be possible for several men to combine their shelter halves, but this arrangement generally makes for poor ventilation, especially in wet weather. The shelter half, complete, weighs but three and one-quarter pounds and is part of the personal equipment of the soldier, and is presumed always to be present and available for shelter.

Camp, Bivouac and Billeting of Motor Transportation

The camp of a truck company should be laid out formally so far as local conditions permit with two parks for the trucks and automobiles. A distance of two truck lengths is sufficient to enable a truck to enter or leave the line, and that is the minimum distance allowable for trucks to enter or leave the park. The ground used for the park should have a resistant soil, either gravelled, macadamized, or paved. Standing orders governing billeting of other troops would apply to motorized units. In addition special provision would have to be made to secure ample parking spaces with good ground base and good circuits.

During road marches, it is often preferable to bivouac on the road, to avoid taking the trucks on soft soil of fields. In such cases, two general procedures are possible:

(a) Where roadway is sufficiently wide or has practicable sides, place the trucks perpendicular to the roadway with radiators away from the roadway, but keeping the traction wheels on firm ground, though clearing the roadway as much as possible. If the space on either side of roadway is sufficient, the company may thus be drawn up in two lines on either side of the road.

(b) Where the road is not sufficiently wide for above, the trains should be closed up in column of trucks with at most one yard's distance between trucks, and placed as far to the right of the roadway as possible, leaving sufficient room on roadway to allow for circulation of other vehicles.

In each of the above cases, care should be taken to leave a clear passageway for passing vehicles. Precautions should also be taken to prevent accident from such vehicles. This may be done by placing lanterns or lights on end trucks, and by stationing sentinels at both ends of the line or column to warn passing vehicles and to make them take a moderate rate of speed while passing the trucks.

The normal training rules as to sanitation should be rigidly enforced. All refuse should be burned or buried. This is especially necessary where the bivouac is made along the highway.

Camps

When troops are sheltered under canvas they are in camp. Certain considerations are important on placing troops in camp. The

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commander must consider the tactical requirements and locate his troops with due regards to their duties in the future, at the same time guarding their health and rest to prepare them for later employment. In the selection of the site special consideration must be given the space required and the supply of good water in sufficient quantity, readily available, for men, animals and motor vehicles. In camping the division trains, consider the location of the distributing points, the supply train and the field trains and their relation to each other. The sanitary train is located so as to supply the hospitalization and the assignment of the camp infirmaries if necessary. Distribution of medical supplies from the medical supply unit is also considered.

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CHAPTER III

Security and Reconnaissance

(A) RECONNAISSANCE

LIEUTENANT COLONEL C. M. BUNDEL,
Field Artillery

In the words of Frederick the Great:

"It is pardonable to be defeated, but never to be surprised."

If two hostile forces could move unmolested to a designated battlefield, the problem confronting each commander would be simply that of disposing his forces for the combat, and a great part of the difficulties of the art of war would be eliminated. But it is one of the most important duties of every commander to take full advantage of the faults or omissions of his opponent, to attack him under circumstances most unfavorable to him, in short, to surprise him, and at the same time to guard against having such things happen to his own force.

In a force that has been surprised, confusion, apprehension and lack of co-ordination are opposed by coolness, confidence and previous preparation, and the force thus surprised must be immeasurably superior if it is to ward off defeat. In general, a surprise spells defeat.

It is, of course, possible to avoid surprise by keeping the whole force constantly on the alert, but this is manifestly unwarranted. Such a course results in nothing but the mental and physical ruin of the troops. Hence, to guard against surprise at a minimum of effort, covering detachments are used. It is obvious that these detachments must be strong enough to hold the enemy while the main force is preparing for the action, as otherwise the whole purpose of the covering detachments would be defeated. These detachments warn the main body of the approach of the enemy by sending in information, but if they are

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too weak to hold the enemy off until the main body can make its necessary dispositions, they are of little value.

On the other hand there is the danger of having these detachments too large. If too large, the main force is unduly weakened and, what is equally important, there is placed before the detachment commander the temptation to take the burden of the whole combat upon his own shoulders, to forget or ignore his mission.

It is the sound tactical mind, capable of carefully estimating the whole situation, that strikes the happy medium.

Before the first battle of Bull Run, McDowell, the Union commander, ordered Tyler with his division to observe the roads leading from Centerville to Bull Run, but not to bring on an engagement. Tyler exceeded his instructions by making a reconnaissance in force and, though he succeeded in developing the enemy's front in the vicinity of Blackburn's Ford, his left flank was turned by the Confederates, he was forced to fall back, and the apparent defeat had a very depressing effect upon the raw troops comprising the Union army. It probably was the beginning of the utter demoralization that occurrred later. This is a good illustration of the danger of detaching too large a force for the work in hand. A whole division was used for a duty that should properly have been performed by a small force of cavalry. The division commander, knowing that he had a whole division behind him, forgot or ignored his mission, went too far, and was defeated. This unnecessary defeat probably had a very great influence upon the action that followed. A squadron commander would not have been so tempted.

In addition to their duty of protection in what we might call a physical sense, covering detachments have another important duty, that of protecting the main body by gaining and sending in information. The amount of information already on hand may vary from the minutely detailed information gathered and distributed by G2 in the World War to very vague information, or even to practically none whatever.

It is with the latter that we are deeply concerned in the study of tactics, in the study of the duties of the commander. Manifestly the commander who can successfully

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organize and use his means of reconnaissance and protection, who can successfully operate under conditions where practically all information must be gained, can also handle situations in which he is supplied with information in the greatest detail. In other words, if the commander can get his own information and can win battles with the information so obtained, he can of course win if that information is given to him.

Thus the study of reconnaissance and security becomes one of primary importance.

In the study of reconnaissance there is one principle that is basic. The first thing necessary is to gain contact with the enemy quickly and never to lose this contact once it is gained. The thing is so manifest, so self-evident that it is almost elementary. But when we look back over the wars of history and see the many occasions on which forces of all sizes blundered about helplessly, with no apparent effort to gain definite information of the enemy, we begin to realize that while this principle may be elementary, it is one that is frequently neglected, and usually to the sorrow of him who neglects it.

Just before the battle of Shiloh or Pittsburgh Landing in April, 1862, Grant's army of about 35,000 men, was encamped near Shiloh, in a strip of broken, heavily wooded country on the south bank of the Tennessee River. The Confederate army under Albert Sidney Johnston, variously estimated by the Union commanders at from 40,000 to 80,000 men, was at Corinth, about 20 miles away. Grant's force consisted largely of raw, green troops, just organized into units larger than regiments. The various camps were arranged with reference to the convenience of the troops and with no system. There were no cavalry outposts between the camp and Corinth. There was some intermittent cavalry reconnaissance towards the enemy, but nothing systematic or persistent.

The historian Ropes has this to say:

> "Probably there never was an army encamped in an enemy's country with so little regard to the manifest risks which are inseparable from such a situation."

Steele, in his *American Campaigns*, makes the following comments on the move of the Confederates towards Shiloh:

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"Instead of reaching the position from which the attack was to be launched at the hour appointed, 7:00 AM, April 5th, it was 4:00 PM before the army was deployed. It was then too late in the day to begin the attack, which was postponed to daybreak of the 6th. Johnston's army was now within two miles of Sherman's headquarters at Shiloh Church. A body of Confederate cavalry had foolishly pushed forward so boldly that it ought to have warned the Federal commanders that there was a strong force close behind it. Yet no warning was taken by the Federals. Saturday, the 5th, the Union cavalry and artillery spent the day moving their camps in obedience to an order changing their assignments. * * * Two of Sherman's brigade commanders * * visited their outposts on Saturday the 5th and saw parties of hostile cavalry hovering in the woods beyond. Some of the sentinels claimed that they had seen infantry. Numbers of rabbits and squirrels were noticed scurrying from the woods in front of the camp. This was all reported to Sherman, but he had no cavalry to send out, due to the exchange of regiments then taking place. On Saturday Sherman wrote to Grant: 'I have no doubt that nothing will occur today more than some picket-firing.' On the same day Grant reported to Halleck: 'I have scarcely the faintest idea of an attack being made upon us.' "

All of this while the Confederates were deploying their whole force within two miles of Sherman's headquarters. In the battle which followed the Union army was saved from disastrous defeat, or even probable annihilation, only by the timely arrival of Buell's column. Notwithstanding the critical emergency, one of Buell's divisions lost its way through lack of proper reconnaissance.

This battle illustrates most strikingly the neglect of the basic principle of reconnaissance and the results sure to follow that neglect. The Union army was surprised, disgracefully surprised. On that side there reigned the greatest confusion, while on the Confederate side there was that coolness which always accompanies the side making the surprise. Apprehension, then fear, seized the Union army. The terror stricken stragglers hiding under the banks of the river have been variously estimated at from 5,000 to 15,000. At the close of the day Grant had no more than 4,000 men in line. On the Confederate side was a well laid plan, as opposed to the absolute lack of plans on the Union side.

It is interesting to note that after this battle the North was ablaze with indignation and the newspapers were filled with the wildest tales of what had occurred. The volunteer physicians and nurses, who in those days took the place of our present Medical Department, got hold of wounded men

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whose imaginations far exceeded their valor on the battlefield, and sent back home wild rumors and stories. Some newspapers claimed that the Union troops had been surprised at breakfast, others that the Union soldiers had been bayoneted in their beds.

In their memoirs both General Grant and General Sherman deplore these wild, untrue statements. Both say that the camp was properly protected, but offer little evidence to that effect.

The gaining of information of the enemy has always been considered one of the most important elements of success in war. Without information of his opponent a commander is like a man who is blindfolded. He does not know where to strike, nor does he know from what direction his opponent will strike; he cannot make an intelligent plan nor can he guard himself against the plans of the enemy.

The gaining of definite, accurate information of the enemy is not only one of the most important duties of a commander, but it is also one of the most difficult. The strength, movements and dispositions of the opponent are veiled by an obscurity which someone has very aptly termed "the fog of war." The opposing commander seeks to thicken this fog by every means at his disposal. The denser this fog, the more valuable the information that it screens. Hence, when two armies take the field, the gaining of information becomes a very serious, perhaps the most serious, consideration in the mind of the commander. He naturally feels that unless he is able to penetrate the fog that surrounds his opponent, he cannot make intelligent plans for defeating the enemy, or even for securing his own safety.

An English writer (General Henderson) makes an interesting comparison between the results of two battles, Friedland in Napoleon's Campaign of 1807, and Spicheren in the Franco-Prussian War of 1870. Napoleon I commanded the French in the former and Napoleon III in the latter battle. Henderson says:

> "In the opening situations there is a curious similarity. In each case the French troops were disposed in a wide arc in the vicinity of a river crossing by which it was expected the enemy would advance. There were five French corps, 80,000 men, within 25 miles of Friedland and about 130,000 within 28 miles of Spicheren. In each case a single corps was advanced to the

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crossing itself and had to bear the brunt of the attack. At the close of the battle of Friedland, the whole of Napoleon's 80,000 men were present on the field, and the enemy had been overwhelmed. At the close of the battle of Spicheren, Frossard's solitary corps was retiring sullenly from a position which it had held unsupported all day, and, save for one dragoon brigade, no other French troops had been in action. Making every allowance for the genius of Napoleon I and the mediocrity in a military sense of Napoleon III and of his lieutenant, Bazaine, admitting the skill and good fortune in one case and the faults and bad luck in the other, it is yet evident that some other influence must have been at work to produce such divergent results from premises so similar. Study of the campaign makes the matter clear at once."

The writer then goes on to explain the detailed reconnaissance put in force by Napoleon I at Friedland. Of the other battle he says in part:

\"Very different was the case in 1870. After the 24th of July the French had 76 squadrons available for reconnaissance duty. The reconnaissances effected, however, by this imposing army of horsemen, although numerous enough, were carried out without energy or enterprise.

"They were undertaken, as a rule, in conjunction with infantry and artillery, and the combined detachments were unable either to move rapidly or conceal their approach. The same villages were visited at the same hour and by the same roads, the enemy's patrols, made aware by the country people of the time and route at and by which the French were to be expected, easily avoided them. No attempts were made by small parties to pierce the hostile lines. Reconnaissance was a lost art to the French. Nor was this powerful force of 8,000 men able to prevent the approach, at all hours and at every point, of the Prussian scouts. At French headquarters, therefore, the most absolute ignorance prevailed as to the points of concentration and the whereabouts of the Prussian army corps. On the day of the battle, the information was no better. The French had neither patrols nor scouts. They were ignorant of the whereabouts of the hostile masses, unable to forecast with any degree of precision the point where the enemy would strive to break their line."

With this in mind there is little difficulty in determining what caused the widely varying results of these two battles. In one the victor had intelligent, extensive reconnaissance. In the other, the loser, similarly situated at the beginning, had no reconnaissance worthy of the name.

At the battle of the Wilderness, in 1864, Grant had an army of 100,000 men and Lee about 61,000. Grant's first move was to cross the Rapidan River. Steele in his *American Campaigns* has the following to say about the first stages of this battle:

"While Grant took all means to conceal his movement on the 4th of May, he, nevertheless, hardly expected that he should be able to cross the Rapidan without opposition. Yet it does not appear that Grant, on the morning of May 5th, expected to en-

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counter Lee's main army on these two roads in the Wilderness. Indeed he hoped to have his army beyond the Wilderness, in open country before he should have to engage battle with the enemy. Neither army appears to have done very effective patrolling during the evening of the 4th or the early morning of the 5th of May. It is almost inconceivable that two such large armies should bivouac within four or five miles of each other without either suspecting the nearness of the other; yet such appears to have been the case."

This appears all the more remarkable when we realize that the reconnoitering forces, the cavalry, of these two armies were commanded by such men as Sheridan and Stuart, and that the battle took place in the last year of the war.

Field Service Regulations define reconnaissance as:

"The work of troops and individuals gathering information in the field."

It has also been defined as:

"The gathering of information about an enemy, or about a country, by personal observation."

By means of reconnaissance a commander in the field endeavors to learn the actual numbers, the dispositions and the movements of the enemy, and to gain such detailed information about the theatre of operations as he may require to supplement his maps.

Reconnaissance may be divided into three types or systems. All reconnaissances have, of course, the same object in view, the gaining of information, but in the study and discussion of the subject these distinctions are sometimes made:

First, we have what might be called the protective reconnaissance, which has for its object the protection and security of the main body. It is that which is confined to ensuring the absence of the enemy, or to obtaining warning of his approach and at the same time preventing the opponent from gaining information of us. This is the nature of outpost, rear guard, flank guard and in some cases, advance guard reconnaissance.

The second type has been called contact reconnaissance by some writers and is that which is employed by large bodies that are prepared to fight for the information they desire. This is the reconnaissance in force. It is generally

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employed by large cavalry forces on such duty. It may sometimes be employed by advance guards.

The third, or so-called independent system, is that followed by patrols and scouting parties. These information patrols are given wide discretion and attempt to gain their information without being observed.

Another use is sometimes made of large reconnoitering parties. That is one in which the reconnoitering force is concerned not so much with gaining information as it is with deceiving and misleading the enemy. An interesting illustration of the use of this type of reconnaissance is found in Stonewall Jackson's Valley Campaign, in 1862.

To quote a writer on the subject (General Henderson):

> "Ashby, the leader of Jackson's small cavalry force, believed in aggressive reconnaissance, and throughout the whole campaign he kept touch with the main Federal force. So skillful and resolute was he that it was impossible for the Federal commander to guess, from the demeanor of Ashby's cavalry, whether they were strongly supported or not. The position of Jackson's main force was consequently a matter of doubt to the Federals at all times, save when actually in action, for Ashby followed exactly the same procedure whether Jackson's main force was one mile or fifty miles distant. On those occasions where Ashby was left to his own device, he employed his whole force on reconnaissance, seeking unnecessary information with simulated eagerness, protecting an imaginary army with pretended earnestness, and by these means enveloping his adversaries in a fog which was lifted only to show Jackson himself at the head of his battalions, secure in the possession of every advantage which skill, surprise or stratagem could give."

Viewing the subject of reconnaissance in its broad sense, we have first, the reconnaissance performed by the air service, second, that by the cavalry, and third, that by the infantry.

The air squadron naturally operates at a greater distance than do either of the other forces. It should gain the first contact with the enemy, follow his movements and endeavor to keep him constantly under observation. The cavalry operates far to the front, but, of course, not as far as the airplane, and back of the cavalry comes the infantry with its own close-in reconnaissance.

The reconnaissance by the airplane, although very rapid and extensive, cannot be relied upon exclusively, no matter how excellent the arm. Naturally the enemy will not allow our air service undisputed supremacy of the air and we must

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count on its having to fight for the information, just as any other arm must do. Again, a few foggy days in succession will completely blind the force depending solely upon the air service. Hence, back of the air service we have the cavalry operating.

At The General Service Schools confusion occurs as to the meaning and use of the expressions independent cavalry, advance cavalry and advance guard cavalry.

Field Service Regulations (par. 15) states:

> "The cavalry attached to an infantry division is called divisional cavalry. When the division is operating independently it also acts as independent cavalry. When the division forms part of a corps, the divisional cavalry is known as advance cavalry. It (divisional cavalry) usually enters into the composition of advance, flank, rear and outpost guards and when so employed is known as advance guard, flank guard, rear guard and outpost cavalry."

The *Cavalry Service Regulations* (par. 569) states:

> "When there is independent cavalry in front, the divisional cavalry maintains connection therewith. When not, it reconnoiters far to the front and gains touch with the enemy if possible, operating in a manner similar to independent cavalry."

This is a little confusing and the definitions adopted at The General Service Schools are the following:

> INDEPENDENT CAVALRY.—Cavalry that is independent of all but the supreme commander.
>
> ADVANCE CAVALRY.—The divisional cavalry (not attached to a covering detachment) of a division operating as part of a corps.
>
> ADVANCE GUARD CAVALRY.—Cavalry attached to the advance guard and under the orders of the advance guard commander.

It is seen, then, that the divisional cavalry may be used and designated in three ways (five if flank and rear guards are considered separately).

As independent cavalry, when there is no other independent cavalry in front. It acts under the orders of the division commander only.

As advance cavalry, when the division is operating as part of an army corps. It connects with the independent cavalry in front and acts under the orders of the division commander only.

As advance guard cavalry, when it is attached to the advance guard. It acts under the orders of the advance guard commander.

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As flank guard cavalry, when it is attached to a flank guard. It acts under the orders of the flank guard commander.

As rear guard cavalry, when it is attached to a rear guard. It acts under the orders of the rear guard commander.

Attention is invited to the model orders in *Field Service Regulations*. Page 19, in the orders for advance guards, advance cavalry should read advance guard cavalry. Page 200, in the orders for outposts, advance cavalry should read outpost cavalry. Page 203, in the orders for rear guards, rear cavalry should read rear guard cavalry.

The tactical handling of cavalry will not be discussed at length at this point, but the duties of cavalry in reconnaissance will be touched on in a general manner.

The *Cavalry Service Regulations* (par. 566) states:

> "The duty of the independent cavalry is to find the enemy's main body and then preserve contact. At the same time it seeks to prevent like enterprise on the part of the enemy's cavalry, thus forming the cavalry screen. To accomplish these objects it is necessary to defeat the enemy's cavalry. For combat the commander therefore maintains a central mass, from which the organs of observation, scouts and patrols, are sent out."

One important thing to remember in this connection is that the commander of the independent cavalry must not be tied down by hard and fast orders, but must be given great latitude. His instructions should usually indicate only the country to be reconnoitered and the extent of the advance of the main body, though attention should be called to especially important localities.

The independent cavalry should not be given such orders as "To advance and discover the strength and position of the enemy," as that is its natural duty. Rather should the order read "To reconnoiter on such and such a front," or "towards such and such places," with special attention to "such locality," if the situation demands it.

The advance cavalry operates well to the front, acting directly under the orders of the division commander. In addition, and without special orders from the division commander, it keeps touch with the independent cavalry.

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The advance, flank or rear guard cavalry acts under the orders of the advance, flank or rear guard commander and executes such missions as he may assign.

The main body is now well covered by the air force and the cavalry, and it would appear at first glance that these should suffice, that it would not be necessary to call upon the heavily burdened infantryman also to take part in the heart-breaking task of reconnaissance. But unfortunately for him that must be done. Excellent though the work of the air force and the cavalry may be, it is not sufficient. Small parties of the enemy may be overlooked by them and may either harass or spy upon the main body. The man in the air has little opportunity to observe closely the features of the ground. He is travelling rapidly and has a larger object in view, the enemy's main force. The cavalry, far to the front, has also a mission which prevents a close study of the terrain. Hence it falls upon the infantry to make the close reconnaissance of the terrain over which the main body must pass or deploy for combat.

As the two opposing forces draw close together reconnaissance naturally divides itself into two parts; the reconnaissance immediately preceding combat and the reconnaissance during combat.

Of the reconnaissance immediately preceding combat, *Field Service Regulations* (par. 17) states:

> "Reconnaissance preceding the deployment is of vital importance. On the information of the enemy and of the terrain obtained through proper reconnaissance, combat orders are issued. How complete such reconnaissance may be will depend upon the time that can be spared for the purpose without losing the initiative in action, the character of the information desired and upon the efficiency of the measures taken by the enemy to conceal his dispositions."

In a meeting engagement, where time and the initiative are all important, the time spent on reconnaissance is naturally reduced to the minimum. Only such information is sought as will enable the commander to make a quick, intelligent decision. On the other hand, before attacking an enemy in a well defended position much more detailed information is necessary and the time required to procure it is much greater.

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In considering the character of the information desired, it may be that about all the commander needs in addition to what he has already, is, for instance, whether or not the enemy has reached a certain point, or taken a certain road and the time to get this information may not be long. But if the commander, for example, needs information as to the exact limits of the enemy's position, it might be necessary to resort to a reconnaissance in force to obtain this, thus causing a long delay.

As to the efficiency of the measures taken by the enemy to conceal his dispositions, he may be particularly strong in aggressive auxiliary troops, or he may have pushed strong infantry detachments to the front for protection, and the time necessary to get any information may be very considerable. He naturally will object to having his opponent get any information and will oppose it with all his means, and combat may be necessary to obtain it.

If the enemy is weak in auxiliary arms or has made a poor use of them, it may and probably will be possible to obtain the desired information in a comparatively short time.

Par. 18, *Field Service Regulations*:

> "The strength of the force employed in this reconnaissance is determined by the character of the information desired and the nature of the hostile screen."

It is obvious that, to obtain information, reconnoitering bodies must be strong enough to break through the protecting screen with which the enemy has covered his dispositions.

If the information that it is desired to have of the enemy is a detailed knowledge of his position, the reconnoitering force must be strong enough, not only to break through his screen, but to force him to deploy his infantry and to open fire with at least a part of his artillery. Such action may develop into the opening phase of the battle, and it is important to keep sufficient troops in hand to change entirely the whole course of the attack, if the information that is obtained should call for such action. In other words, let us assume that a strong reconnoitering party is sent out for the purpose of determining whether or not a certain flank

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of the enemy's position is strongly held; in the fight that results, it develops that that flank is very strongly held and that the enemy is apparently determined to hold that part of his line at all hazards. This information might easily lead to a decision to attack at some other point. If a force sufficiently great to start the contemplated attack immediately were not at hand, the reconnoitering party might soon become so heavily involved that it would be necessary to support it and engage more troops at this point, with the final result that the attack would develop at the very point at which it was desired to avoid attacking.

Field Service Regulations, par. 19:

> "In any advance towards the enemy the advance guard must be relied upon for such reconnaissance as is necessary, either to supplement the reconnaissance of other troops, or to replace it when other reconnaissance is wholly wanting."

One of the important duties of the advance guard in a march towards the enemy is to determine the enemy's strength and position. In order to do this it must often resort to attacks to make the enemy disclose these. In large advance guards a strong component of artillery will permit this action without undue losses.

As has been pointed out repeatedly an advance guard commander must remember that he is not out in front to start the battle, necessarily, but that his mission is to cover the advance of the main body, to force the enemy to disclose his strength and position and to gain time for the higher commander to make his decision and prepare his plans. The advance guard accomplishes this, in the case of an enemy in position, by advancing the infantry, driving back all the enemy's covering detachments and uncovering the enemy's main position. The artillery takes part by firing upon any targets disclosed by the infantry advance. Naturally the enemy will soon be forced to use his own artillery to stop the infantry advance or to keep down the artillery fire. In this manner the enemy's main position, and to some extent at least, the location of his artillery are learned.

Reconnaissance During Combat

In the combat, the opposing infantry forces have gained contact and it now becomes the duty of the infantry, rather

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than of the cavalry or the air force, to maintain that contact. Not only must the infantry maintain contact during the combat, but it must protect its own flanks from immediate attack or surveillance and it must keep the commander constantly supplied with information of the terrain over which it is operating. As the two forces come into contact the cavalry is forced to draw off to one or both flanks, hence it is not in position to make a detailed reconnaissance of the ground. The air force does not attempt this duty as a general thing. It should operate over the enemy's position, on his flanks and in his rear, to discover quickly his dispositions, the approach of reinforcements and any signs of a withdrawal.

During combat the cavalry reconnoiters on the flanks and in rear of the opponent. However, the mistake should not be made of splitting up the whole cavalry force for this purpose. This reconnaissance should be performed by comparatively small detachments, the main body of the cavalry being held close at hand to assist in gaining success in the main battle. For example, if the enemy is defeated and begins a retreat and the cavalry is split up, operating all over the field, there is lost the golden opportunity of hammering the retreating foe with a large mass of cavalry, and the victory is not complete. Again, if the battle at some point, a flank for instance, goes unfavorably, a large body of cavalry may prove just the force to throw in and save the day. Undue dispersion of the cavalry is just as bad tactics as undue dispersion of infantry.

It must be borne in mind that the term undue dispersion, is a relative one. The cavalry being highly mobile, its component parts may be widely separated without undue dispersion. Similarly, in some circumstances, such as when roads are good, infantry in trucks may be safely separated by distances that on foot would be suicidal. On the other hand, two parts of a force may be separated by a very short distance, yet be unduly dispersed by reason of a serious obstacle, such as an unfordable river, between the parts. In determining whether or not a force is unduly dispersed, a number of things besides the actual distance must be taken into consideration.

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Artillery always operates with other troops, and it is the duty of the other arms to provide for its security, as the artillery is poorly equipped for this purpose and its personnel is used for other necessary purposes. However, the artillery does conduct a reconnaissance of its own, but this is primarily for the purpose of securing information that will favor the movement and employment of the guns and for maintaining communication between the commanders concerned.

It is often advisable to have artillery scouts as far forward as possible, even with the advance guard cavalry. An intelligent man, well trained in his special work, will usually be able to send back to the artillery commander valuable information of possible positions or other details that a man not so trained would probably overlook.

No matter how large the force operating, the small patrol, the patrol of a few men, plays an important part, especially just before and during combat.

When a body of troops is to pass over or deploy upon a certain terrain it must have an intimate knowledge of that terrain, a knowledge that can only be obtained by small parties actually reconnoitering it. In addition, exact information of the ground in front of a position and of the enemy's dispositions must be obtained, and here again the small patrol is often used. Since combat orders are based upon the information gained in this manner, the subject of patrolling is one of great importance, and it is imperative that junior officers and noncommissioned officers become highly proficient in this work.

Par. 23, *Field Service Regulations*, states:

> "The chief duty of reconnoitering patrols is to gather information. They habitually seek safety in flight or concealment, fighting only when their mission demands it. The most skillful patrolling is where patrols accomplish their missions and return without being discovered by the enemy."

It is a cardinal principle that only enough patrols are sent out to insure effective reconnaissance. Patrolling is hard, dangerous work, and should be kept down for this reason if for no other. It is a mistake to send out too many patrols, as this course unduly disperses and weakens the command and wears out the men with unnecessary work.

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The successful handling of a patrol is an art, and one that can be learned only by hard work. Like all other tactical problems there is no set form for handling patrols. In general a patrol uses a formation similar to that of larger bodies, a main body surrounded by covering detachments. This principle is carried down to even the patrol of a few men, in which case the covering detachments may consist of single men each. Whatever the formation used, it should favor the escape of at least one man.

The following paragraphs are quoted from the *Infantry Drill Regulations*, as they cover this subject of combat reconnaissance very thoroughly:

"Combat reconnaissance is of vital importance and must not be neglected. By proper preliminary reconnaissance, deployments on wrong lines or in wrong directions, and surprises may generally be prevented.

"Troops deployed and under fire suffer greatly when enfiladed. Troops in close order formation may suffer heavy losses in a short time if subjected to hostile fire. In both formations, troops must be protected by proper reconnaissance and warning.

"The difficulty of reconnaissance increases in proportion to the measures adopted by the enemy to screen himself.

"The strength of a reconnoitering party is determined by the character of the information desired and the nature of the hostile screen. In exceptional cases, as much as a battalion may be necessary in order to break through the hostile screen and enable the commander or officer in charge to reconnoiter in person.

"A large reconnoitering party is conducted so as to open the way for small patrols, to serve as a supporting force or rallying point for them and to receive and transmit information. Such parties maintain signal communication with the main body if practicable.

"Each separate column moving forward to deploy must reconnoiter to its front and flanks and keep in touch with adjoining columns. The extent of the reconnaissance to the flanks depends upon the isolation of the columns.

"Before an attack, a reconnaissance must be made to determine the enemy's position, the location of his flanks, the character of the terrain, the nature of the hostile field works, etc., in order to prevent premature deployment and the resulting fatigue and loss of time. It will be necessary frequently to send forward a thin skirmish line in order to induce the enemy to open fire and reveal his position.

"It will frequently be impossible to obtain satisfactory information until after the action has begun. The delay that may be warranted for the purpose of reconnaissance depends upon the nature of the attack and the necessity for promptness. For example, in a meeting engagement and sometimes in a holding attack, the reconnaissance may have to be hasty and superficial, whereas in an attack against an enemy carefully prepared for defense there will generally be both time and necessity for thorough reconnaissance.

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"Reconnaissance continues throughout the action. An assaulting echelon can take care of its front, but its flanks are especially vulnerable to modern fire arms. The moral effect of a flanking fire is as great as the physical effect. Hence, combat patrols to give warning, or covering detachments to give security, are indispensable on exposed flanks.

"The fact that cavalry patrols are known to be posted in a certain direction does not relieve infantry commanders of the responsibility for reconnaissance and security. To be surprised by an enemy at short range is an unpardonable offense.

"The commander of a unit on the flank of a general line invariably provides for the necessary reconnaissance and security on that flank unless higher authority has specifically ordered it. In any event he sends out combat patrols as needed.

"When the unit is on a flank of a section of a line and a considerable interval lies between the unit and the next section, he makes similar provision. In anticipation of the occurrence of gaps between attacking units, strong combat patrols are usually detailed by battalion and larger units, prior to the engagement, for the purpose of maintaining tactical contact with adjacent units.

"Organization commanders in the first line establish patrols to observe and report the progress or conduct of adjoining troops when these cannot be seen."

The subject of combat patrols is a very important one, and one that is often neglected.

Patrols sent out to protect the flanks of a force in an engagement are called combat patrols. It is obvious that to a force actively engaged with the enemy, the flanks are the most vulnerable parts. To be suddenly struck on the flank by a strong hostile force is apt to be demoralizing. Once engaged with the enemy, it is very difficult to change the position of troops to meet an attack on the flank, hence, both on the offensive and the defensive, careful steps must be taken to protect the flanks. Cavalry should be sent out to afford this protection by observation, even if not strong enough to secure it by fighting.

Notwithstanding this protection by the cavalry, infantry must send out its own patrols for the security of its flanks. These combat patrols are in the nature of covering detachments whose function it is to give warning, though they must also have strength enough to drive off small hostile reconnoitering patrols.

The protection of the flanks of the whole command is, of course, the duty of the higher commander, but in the absence of any orders on the subject, the commanders of the flank units are not relieved from the responsibility for the proper protection of the flanks. A brigade, a regiment,

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a battalion, on the flank of the line must provide for flank security, even without special orders to that effect.

Flank protection is made mandatory on the commanders of the flank units in order that this important matter may not be neglected. If the higher commander makes no provision for it, the next lower one automatically does.

Combat patrols vary in size to meet the needs of the situation. Manifestly a large part of the command would not be used on a flank as a combat patrol. This would mean dispersion and the weakening of the main body. A threatened attack on the flank by a large force would properly be met by using the reserve, but the warning of this threatened attack would come from the combat patrol.

(B-1) SECURITY ON THE MARCH—ADVANCE GUARD

LIEUTENANT COLONEL C. M. BUNDEL,
Field Artillery

Maps: General Map, Gettysburg-Antietam, 1 inch = 10 miles.
Gettysburg, 1:21120.

General Situation:

Blue Ridge Mountain and South Mountain form the boundary between two hostile states, Blue, east—Red, west. War has recently been declared and a Red army has invaded Blue territory from the north. Reds are known to be concentrating at Waynesboro.

A Blue army, based on Baltimore, has stopped the Reds along the general line Goldenville—Hunterstown—York pike.

The cavalry forces of the two armies are opposing each other near York.

Special Situation (Blue):

The 1st Division, reinforced by the 1st Observation Squadron and the 1st Squadron, 1st Cavalry, has moved from Frederick and has finished detraining at Taneytown. On November 18, it is bivouacked as follows:

1st Squadron, 1st Cavalry, near road junction one mile north of Taneytown.
1st Brigade, on both sides of the road, just north of Taneytown.

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2d Brigade and 1st Engineers, west of Taneytown and south of the Taneytown—Bridgeport road.
1st Field Artillery Brigade and 1st Field Signal Battalion, just east of Taneytown.
1st Machine Gun Battalion, southeast of Taneytown between parallel roads.
Division Trains, south of the Taneytown—Oregon S. H. road.
1st Observation Squadron, at Frederick, connected with the division command post by radio and wire.

The Northern Central Railroad has been double tracked between Frederick and York.

The 2d Division, coming from Frederick, is due to begin detraining at Littlestown about 3:00 PM, November 19. Weather, foggy. Visibility, poor. Heavy rains for the past two days. Rock Creek and Monocacy River, unfordable south of Baltimore Pike.

At 7:00 PM, General A at Taneytown, received the following telegram from the army commander at Hanover:

1st Army,
HANOVER,
18 Nov 19, 6:50 PM.

CG, 1st Div.
By telegraph.

Situation unchanged. Red cavalry patrols reported this afternoon at EMMITSBURG and FAIRFIELD. Left of our line at GOLDENVILLE. Move your division tomorrow to GETTYSBURG and await further orders there. BALTIMORE TURNPIKE and roads east of it reserved for the Army.

X,
Maj Gen.

Required:

1. Orders as actually issued by General A.
2. Reasons for action taken.
3. Orders as actually issued by the advance guard commander.
4. Reasons for action taken.

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Discussion

First Requirement:

1st Div,
TANEYTOWN, PA.,
18 Nov 19, 8:30 PM.

FIELD ORDERS
No 1

Maps: Gettysburg, 1:21120.

TROOPS

(a) *Air Service*
Maj S
1st Obsn Sq

(b) *Ind Cav*
Maj C
1st Sq 1st Cav (less 1 plat)
1 Rad Sec Sig C

(c) *Advance Guard*
Col D
1st Inf
1 plat Tr A 1st Cav
1st Bn 1st LA
Co A 1st Engrs
4th Amb Co

(d) *Main Body* in order of march
1st Brig (less 1 regt)
1st FA Brig (less 1 bn)
2d Brig
1st Engrs (les 1 co)
Arty C Tn
1st MG Bn
1st, 2d, 3d Amb Cos

(e) *Signal Troops*
Major R
1st F Sig Bn (less dets)

1. Situation unchanged. Red cavalry patrols reported this afternoon at EMMITSBURG and FAIRFIELD. Left of our army at GOLDENVILLE.
2. This division marches to GETTYSBURG tomorrow.
3. (a) The 1st Obsn Sq will reconnoiter at daylight tomorrow the mountain pass west of EMMITSBURG, and the country between the MONOCACY RIVER and SOUTH MOUNTAIN as far north as ARRENDTSVILLE. The presence of any Reds on the WAYNESBORO TURNPIKE will be reported without delay.
   (b) The independent cavalry will march at 6:30 AM via the 491—463 road, through FAIRPLAY and KNOXLYN. Reconnaissance to EMMITSBURG and on the front SOUTH MOUNTAIN—EMMITSBURG road.
   (c) The advance guard will clear the road junction 1200 yards north of road junction 491 at 7:30 AM and march via the TANEYTOWN ROAD. The bridges at HARNEY, CLEAR RIDGE FARM and BARLOW will be secured without delay. Reconnaissance to include the line of hills two miles west of the MONOCACY RIVER. Contact will be maintained with the independent cavalry.
   (d) The main body will follow the advance guard at 1000 yards.
   (e) The 1st F Sig Bn will march between the advance guard and the main body.
4. Field trains will await orders in their respective camps. See Administrative Orders No 1 (omitted).
5. Messages to TANEYTOWN until 10:00 AM; from 10:00 AM until 2:00 PM to BARLOW; after 3:00 PM to telephone exchange at GETTYSBURG.

   The 1st F Sig Bn will maintain communication along the line of march by means of local telephone lines.

A,
Maj Gen.

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Copies to:

Div Staff	1st MG Bn
1st Brig	1st Obsn Sq
2d Brig	1st F Sig Bn
1st FA Brig	CO Tns
1st Engrs	CG 1st Army.

Second Requirement:

In taking up the problems confronting General A in the present situation and before attempting to come to any decision regarding them, it is necessary to look into the situation as a whole, in order that we may, as far as possible, think ourselves into General A's actual position.

The Reds (west of the mountains and somewhat better prepared) have invaded the territory of the Blues (east of the mountains). The Red army has been met and stopped, temporarily at least, by the Blue army, and the two forces are now fighting along the general line Goldenville—Hunterstown—York pike. Judging from the position in which the Blues now find themselves, it is reasonable to assume that it is not one deliberately chosen by the Blue commander, but rather one forced upon him by circumstances. These circumstances probably are the meeting of the two armies and the subsequent deployment by each side to meet the moves of the opponent.

The Blue position is practically parallel to any line advance of the Reds from the west. The left of the line is "in the air" and the left and rear are open to attack. A successful move of the Reds against the rear would interrupt, if not cut entirely, Blue communication to the south and to Frederick. The left of the Blue line is also too close to the mountains to the north and west. The mountains, which are in the hands of the Reds, offer them excellent ground observation of the whole country to the east and southeast. In case the situation should become stabilized these mountains would permit the Reds to bring up, concealed from the view of ground observers, reinforcements and heavy artillery. A strong blow on the Blue left from the west or southwest would probably prove decisive and result in rolling up the Blue line.

The Blue commander evidently appreciates his faulty position, as he is bringing up troops to relieve the situation

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either by driving back the Reds, or if that is not possible, by re-establishing his line on more favorable terrain. The Red army commander doubtless appreciates the Blue predicament and will bring up troops to enable him to take full advantage of the situation.

The 1st Division, coming from Frederick by train, finds itself on November 17 in camp about Taneytown, the camp presumably having grown up as the units arrived. The division is complete, with all its auxiliary arms and trains, the 1st Observation Squadron being at Frederick in close touch with General A by wire and radio.

Now let us look into the order received from the army commander and see what information is given there and what task is allotted to the division. The information of the Reds is very meager. Practically nothing is given other than that Red cavalry patrols have been seen during the afternoon in the vicinity of Emmitsburg and Fairfield. This may mean little or it may mean much. It may mean nothing more than that the Red cavalry has been very aggressive and has worked its way around the Blue left, sending patrols as far south as Emmitsburg. While no mention is made of any Blue cavalry on the left of the Blue position, it is but reasonable to assume that the Blue commander would not make the error of failing to protect his extreme left by some cavalry.

Before assuming that the Reds have succeeded in getting around the Blue left, it is well to consider whether or not such action on their part would be reasonable. Emmitsburg is about fifteen miles from the right of the Red army. Would it be proper for the Reds to send cavalry patrols as far away as Emmitsburg and into a country in which all of the roads lead back into Red territory? If a cavalry force were sent out from in rear of the Red army, would not its legitimate work carry it more to the flank and in rear of the Blues?

Again, only patrols are reported, nothing being said of any large body of cavalry in this vicinity. The main Red cavalry force is operating far to the east against the Blue cavalry. In order to send patrols as far away as Emmitsburg it would be necessary to maintain a "central mass" of

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cavalry within supporting distance of the patrols. It seems reasonably sure that such a central mass is not operating in this area or some mention would have been made of it. Patrols at two places having been discovered by the Blues, it is not unreasonable to assume that they would also have discovered a much larger force.

Hence, it would appear that the patrols at these two places have been sent out through the mountain pass, possibly as forerunners of other forces. Aerial observation having been handicapped by bad weather for the past two days, no information is at hand to show definitely whether or not this is the case. However, it is something that General A must keep in mind.

No mention is made of the Red infantry. Apparently the Blue army is not in a desperate situation or the army commander would have made some mention of that fact. The army commander's order simply requires General A to march his division to Gettysburg, where further orders will be given him.

This being the case, General A's present task is to determine how he will make this march and what means of security he will use.

Let us discuss these briefly in the following order:

Formation of the march column.
Route to be followed.
Security on the march.

Formation of the March Column

The question immediately arises whether General A should march the division in one or more columns. On this subject *Field Service Regulations*, par. 152, state:

> "When an encounter with the enemy is probable, every available means will be taken to gain information and to lessen beforehand the time that will be required in the deployment for action. Single route columns of such a length that the rear elements are out of supporting distance of those in the lead must be shortened by an extension of the front as far as the security and the terrain will permit. This extension is secured by breaking the single column into two or more parallel columns rather than by an extension of the front of the unit."

Is combat probable for General A today? If it is probable, where is it most likely to occur? As we have seen, the army commander does not consider that any great emer-

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gency exists on his left, otherwise his orders to General A would have included some intimation of that, or at least, instructions to expedite his march. It therefore seems fairly reasonable to assume that the 1st Division will not be engaged on the left of the army today. Even if marching in two columns, the rear elements could not reach any possible field of action on the left of the Blue army before late in the afternoon, too late to take any serious part in an engagement. It is at least fifteen miles to the heights west of Goldenville, or six hours of steady marching. The troops at the rear of a half-division column would still be six miles or more than two hours' march away. Hence more than eight hours of steady marching would be necessary before the rear elements would be in the line, not including the time necessary for development and deployment.

In figuring the time necessary for the approach march there is a point that is often overlooked. When large forces are deploying for combat, that is, getting their intervals to the right or left and moving up to the line, the rate of progress is materially lessened, probably to one-half of the ordinary rate of march. The units must usually move across country, each unit must throw out in advance some covering detachment and, of course, all ground must be carefully reconnoitered before the main body reaches it, all of which takes time and slows down the march of the main force.

It can therefore be figured that about the last three miles of the march into position will take nearer two hours than one. General A could not, then, hope to get his troops into line in less than nine hours of steady marching. Leaving at 7:00 AM, it would be at least 4:00 PM before the last of the units would be in line, and this only in case there were no unlooked for delays.

There is, of course, the chance that the Reds may drive back the Blue left tomorrow, requiring that the 1st Division be thrown in without delay. In this case the two-column march would be a decided advantage. However, this situation seems rather remote at present.

Is there probability of combat in any other direction? As has been seen, the presence of the Red patrols at Emmitsburg and Fairfield rather indicates that there may be

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other forces behind them. The mountain pass offers a good route for Reds sent forward to strike the Blues in flank or in rear. The fact that no report has been made of any Red force in this pass does not necessarily mean there is none there. The weather conditions have prevented proper air reconnaissance for two days and the Red cavalry at the eastern exit of the pass would naturally see that no information was obtained by any other means. Hence it is possible that there are Red forces in the pass. In addition, the sending of a large Red force through this pass would be about the most disadvantageous thing for the Blues.

Assuming that there may be Red troops in the pass, what effect would this have on General A's march column? If the Reds came through the pass they could move via Emmitsburg, Fairfield, or one of the intermediate roads. In any case the Reds would be on the left of General A, marching either towards him or parallel to his column. A march by the Reds via Fairfield, to the right of the Red army, would be a risky undertaking. It would be a flank march in the presence of the enemy, and would have the added disadvantage of lack of space for maneuver, as the mountains immediately on the left would preclude any maneuvering in that direction. So it seems probable that the Reds, should they come through the pass, would move east a sufficient distance at least to gain the necessary ground for maneuvering. If they came through the pass they would, of course, be in a single column.

Should such a thing happen, how would General A be placed for combat if his division is in two columns? In order to keep units intact the columns would doubtless each contain an infantry brigade, and one, probably the eastern one, would include the bulk of the artillery. If the enemy appears on his left he finds his division in two lines, one some distance behind the other, each containing a brigade of infantry. He is thus practically forced to meet the enemy in this formation whether he wishes to or not. In other words, General A is practically denied the privilege of deploying his division as he desires. This formation might turn out to be what General A would wish, but on the other hand it might be just what he would not wish.

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If the division is in one column, the infantry brigades can be turned to meet the enemy, and General A finds himself partially deployed with both brigades in column and within supporting distance of each other. Such a formation gives General A much more freedom of action. He can deploy either or both brigades to either flank, and make his attack or occupy his position with the brigades side by side.

Let us now look into the question of roads, which have an important bearing on the formation of the march column. A glance at the map shows the Taneytown Pike to be the most direct, and probably also the best road, since it connects three towns with Gettysburg. East of this pike the roads are very crooked and probably much poorer, as they seem to run from farm to farm. It is not reasonable to expect that such roads will be as good as a main highway or pike. Also, the heavy rains may have put them into bad condition. However, there is little doubt that the whole division, with the possible exception of the motorized units, could use all of the roads.

The main question is, however, whether or not these roads lend themselves to a march in two columns. Those east of the Monocacy River do not appear to do so. Those west of the river are more favorable for a two-column formation, but there is one serious objection to using them for this purpose. One column would have to use the Taneytown Pike, while the other marched west of the Monocacy. Until the bulk of the eastern column had cleared the bridge at Barlow, the columns would be separated by a serious obstacle, the river itself, which is now in flood. With his division thus broken up into separate parts, an accident to the bridges at Harney and Clear Ridge Farm might put General A into a very precarious position if a large, highly mobile force of the enemy should attack from the west.

Later on in the march the columns would be again separated by the hilly areas in the vicinity of the Round Tops, which might prove to be considerable obstacles to the proper maneuvering of the division.

Taking all these things into consideration, General A concludes that he will march his division in one column, as

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he feels that that is the formation best suited to meet any emergency that may arise today.

Route

The question of the route is a simple one. The Taneytown Pike offers a number of advantages and few disadvantages. Portions of the road from Harney to the Round Tops would possibly be visible from the mountains west of Emmitsburg in good weather, though the distance, nine miles, is very great. Observation from the air would locate him, whatever road he took. General A can hardly hope to conceal so large a force as a division from observation, especially if the enemy is aggressive.

The road via Mountain View Farm and Fairplay appears to be a good one, but it is longer and also has the disadvantage of possible exposure to long range artillery fire from the vicinity of Emmitsburg.

General A therefore decides on the Taneytown Pike.

Means for Reconnaissance and Security on the March

General A now considers the means at his disposal for reconnaissance and security on the march.

Observation Squadron

First comes the observation squadron, which should naturally determine at the earliest possible moment whether or not there are any Reds in the pass and in the country lying to the west and northwest of General A's line of march. Should the weather be clear and the Red air force not prevent this reconnaissance, General A should be in possession of this information within a comparatively short time after daylight of the following day. A circuit of about sixty miles, or less than an hour's actual flight, would cover this whole area that must be reconnoitered.

Cavalry

How shall General A use the squadron of cavalry that he has at his disposal?

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Looking into the situation from this point of view we find that there is little need of any large cavalry force operating in front of the division. The division is virtually making a march in rear of the Blue army and there is little chance that it will encounter opposition in force on its line of march. The danger seems to be from the west. The mountain pass is a natural line of advance for a hostile force aiming a blow at the flank or rear of the Blue army. Hostile cavalry patrols have been seen in the vicinity of this pass. It is in this direction that the cavalry should be sent. But other localities must not be neglected. General A must also know of the condition in the territory west of Gettysburg.

It is often desirable to use the cavalry directly with the advance guard, but the present situation does not seem to be one in which this method of employing the cavalry would be the best. There is little to fear within the limits of the activity of the advance guard and the mission of the cavalry is certainly outside of such limits in this particular case. Hence, to put the cavalry squadron in the advance guard would result in limiting its activity and in keeping it from its legitimate work, that of gaining contact with any hostile force and that of reconnoitering at a distance.

General A therefore decides to have his cavalry squadron act as independent cavalry. To cover the territory assigned to it for reconnaissance the squadron would not go as a body as far west as Emmitsburg or as far north as Cashtown. To carry out this mission the squadron commander would properly move his squadron along some centrally located route, such as the Fairplay—Knoxlyn road, sending out patrols to the threatened places while his main body was in position to back up these patrols in case of emergency.

A small force of cavalry should be assigned to the advance guard for the close-in reconnaissance beyond the limits of the infantry. For example, the line of hills about two miles west of Clear Ridge Farm and Barlow. From these heights good views of the country to the west can be obtained, but they are too far for infantry patrols, which would require at least an hour and a half to reach them,

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observe and return. All unnecessary marching by the infantry should be avoided and all possible measures taken in advance with this idea in view.

However, General A does not wish to weaken materially his already small force of cavalry, so he decides to take but one platoon for the advance guard.

Advance Guard

Field Service Regulations (par. 40) give the following general duties for the advance guard:

> "1. To guard against surprise and furnish information by reconnoitering to the front and flanks.
>
> "2. To push back small parties of the enemy and prevent their observing, firing upon or delaying the main body.
>
> "3. To check the enemy's advance in force long enough to permit the main body to prepare for action.
>
> "4. When the enemy is encountered on the defensive, to seize a good position and locate his lines, care being taken not to bring on a general engagement unless the advance guard commander is empowered to do so.
>
> "5. To remove obstacles, repair the road and favor in every way the steady march of the column."

In the present situation we see that numbers 3 and 4 hardly apply, as there is little chance of the advance guard encountering an enemy in force on this day's march, and still less of encountering him on the defensive. So the duties of the advance guard will be those under numbers 1, 2 and 5. For this purpose the advance guard need not be very strong. According to *Field Service Regulations* (par. 41) the advance guard may be from one-twentieth to one-third of the command, depending upon the situation. The larger the force the larger in proportion is the advance guard, as large forces take relatively longer to prepare for action than smaller ones.

An unduly large advance guard accentuates the ever present danger that the advance guard commander may bring on a premature engagement, but as there is not much likelihood of an engagement by the advance guard in the present case this need cause little concern. An advance guard is a detachment in a certain sense and it is a general rule to keep detachments as small as possible, provided, of course, that they can perform their tasks.

A small advance guard cuts down the length of the column to a certain extent and simplifies the work of supply.

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When it is attempted to reduce the size of the advance guard the undesirablity of splitting units at once arises. In the present situation, unless the left of the Blue army should be driven back, a battalion of infantry would appear to be sufficient for any duties that the advance guard may be called upon to perform, and two battalions certainly so. But in taking either one or two battalions the regiment is split. If one battalion is taken machine guns should be attached and the machine gun company is split up also. If two battalions are used, there remains a single battalion of a regiment with the main body. The splitting of units means a certain loss of control, a loss of unified fire action and added difficulties in the work of supply.

By using a regiment, while more men than appears necessary are employed, a complete unit is taken and the saving in the work of supply would more than balance the increase in road space.

The brigades at Harney and Barlow, especially the latter, are sensitive points for the division and must be protected. Orders to this effect should be given to the advance guard commander, as this work, so close to the division, would not properly be that of the independent cavalry. Its work lies much farther away.

It might be argued that cavalry should be sent out at once to guard these brigades, as this would insure their being unmolested. But is this advisable? While a commander may wish to take every possible precaution, there are, of course, limitations upon the number that he may properly take. In order to guard all of the bridges along the river it would be necessary to split his cavalry into five or six detachments and spread them over seven or eight miles. While on this duty the men and animals would get little rest, and they are sure to have a hard time on the next day. There would also be some extra delay in getting the cavalry started on its work the next morning. In addition there does not seem to be any immediate danger of damage to the bridges. The division is in friendly territory and there seems little chance that hostile patrols would venture so far behind the Blue army and blow up bridges.

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However, in case of damage to the bridges, General A should be prepared to have them repaired rapidly. For this purpose a detachment of engineers should be assigned to the advance guard. A company is probably more than would be necessary, but to avoid splitting units, a smaller detachment would not be used.

For the purpose of driving off small hostile bodies at long ranges and in order to save both time and labor for the infantry, a small force of artillery with the advance guard would prove valuable. A battery would probably be sufficient for this purpose, as any probable opposition on the line of march apparently would be from rifle, and possibly from machine gun fire. If this opposition could not be overcome by the infantry and machine guns, the battery could be called upon and in a very few minutes could put fire on the danger spot.

The question now is, how much artillery should there be? For the work immediately in front, a battery seems large enough, but is there not a possibility of opposition appearing in some other direction, against which the advance guard might be employed with advantage? Assuming that such opposition might appear on the left, would a battery be enough? If the opposition were in force and especially if it contained artillery, one battery would not be enough. Its fire power is too small. In other words, while maintaining an effective fire upon one locality it might easily have to neglect another locality a few hundred yards away and equally as dangerous. A regiment would give six times the fire power of a battery, so why not use a regiment? While so much fire power might be desirable, it is the exception when a regiment of infantry acting as an advance guard would be called upon to use all this power at the beginning of an engagement. In addition a regiment of light artillery with its combat train occupies two miles of road space, which would unduly lengthen the advance guard and might cause most of the infantry to be used simply as an escort for the artillery. A battalion of artillery would therefore seem to be the force which best fits into this situation. It should be accompanied by its combat train. Otherwise its combat train would be assembled with that

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of the field artillery brigade marching in rear of the division, at least ten miles away. With combat trains separated from their firing units by long distances, two difficulties arise. First, the delay in getting up ammunition that may be badly needed, and second, the difficulty that the trains may have in locating and reaching units which are in positions far ahead, while the roads are filled with troops moving forward or deploying into line.

An infantry regiment having with it at all times detachments of radio and wire companies of the field signal battalion, it is not necessary to attach any signal troops to it.

As there is the possibility of combat for the advance guard, some provision should be made for caring for the wounded during the time that the division is deploying, and the ambulance companies that are marching in rear of the division are brought forward.

The sanitary train consists of one animal-drawn and three motor ambulance companies, each of twelve ambulances. Manifestly the motorized companies are not suitable for marching with foot troops, especially with an advance guard, as the rate of march is too slow. In an advance guard, the presence of the main body a short distance behind prevents the ambulances from halting from time to time until the column has gained considerable distance and then moving up at a proper rate of speed. This leaves the animal-drawn company to accompany the advance guard. While this company contains more ambulances than will probably be needed, the whole company is used, to avoid splitting units.

Distance Between the Advance Guard and the Main Body

Par. 42, *Field Service Regulations*, states:

> "While the distance between the two bodies should be great enough to prevent useless interruptions in the march of the main body, and to give the latter time to deploy should the enemy be encountered, it should never be so great that timely support of the advance guard becomes impracticable."

In the case under consideration the duties of the advance guard are to insure the steady, uninterrupted advance of the main body, and the question of delaying the

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enemy long enough for that body to deploy scarcely enters, hence about one thousand yards would seem sufficient. A greater distance might properly be used, but the greater this distance, the more the column is strung out.

Order of March of the Main Body

On a march it is customary for division headquarters, or at least the advance echelon, to go forward by bounds. This is especially true if the march extends over several days. These bounds may be one day's march or may include two or more days' marches. Bounds of this extent are possible only in marches in territory with no enemy present. The usual procedure is for the headquarters to be divided into the advance echelon and the rear echelon. This former consists of the division commander and his personal staff, the chief of staff, G1 section, chief and field section of G2, G3 section, machine gun officer, air service officer, division engineer, signal officer and message center, and the artillery commander. The rear echelon consists of the remainder of the division staff.

Either the division commander or the chief of staff is actually present at the advance headquarters. The rear echelon should have with it a representative from G1. Whether or not the rear echelon moves up later, depends upon the distance that the division moves ahead and upon the situation in general.

In this particular case there is no need for the rear echelon to move from Taneytown, which is the railhead and refilling point for the division.

In the situation that is being considered the division is making but a day's march, and ordinarily the advance echelon would move at once to Gettysburg, provided of course that no interference is expected from the enemy. Should General A wish to move his advance echelon by bounds today, he would probably have it wait until the advance guard cavalry has had time to reach Barlow, and then send the echelon forward to that place. Harney is too close to Taneytown to use as an advance headquarters.

The remainder of the brigade from which the advance guard infantry was taken, would naturally lead the main body.

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Par. 1535, *Drill and Service Regulations for Field Artillery*, states:

> "Artillery is usually placed in the column of march so that its early entrance into action is facilitated and its security insured by the other arms. These two considerations are frequently antagonistic, therefore in any situation both should be considered, but the more predominant should have precedence. In an advance the artillery of the main body is generally well forward in the column, while the artillery of the advance guard is well to the rear of the formation, generally with its reserve."

In this situation, combat in the direction of march is not expected, but there is the chance the enemy may appear on the left flank. If the artillery is placed between the two infantry brigades, in case of a change in the direction of march, it would be in the proper position to follow either of the brigades. If so placed in rear of the main body, it would be unduly separated from the leading brigade in case each brigade changed its direction of march.

Since the artillery carries in its caissons sufficient ammunition for the opening stages of the battle, the combat trains of the brigade should be assembled and marched in rear of the division, in order not to separate the infantry units unduly (field artillery combat trains have a road space of a little less than two miles and a half). An officer should be assigned to command the assembled combat trains on the march (par. 1544, *Drill and Service Regulations, Field Artillery*).

The 2d Infantry Brigade should follow the field artillery brigade.

As there will probably be no special duties for the engineer regiment today, it should march in rear of the infantry.

About the only duties that will be required of the field signal battalion, other than operating the radio during the hourly halts and furnishing a pack radio section to the independent cavalry, will be to keep the local telephone lines along the line of march in operation, so that communication along the column will be continuous. To do this effectively the signalmen must get to the various centrals and have them in operation by the time the advance guard reaches them. It is not, of course, correct to put the field signal battalion in advance of the advance guard. By plac-

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ing it between the advance guard and the main body and giving the signal officer orders to keep telephone communication open, the situation can easily be handled by sending a few men forward to the advance party, ready to take over the local exchanges promptly.

The division machine gun battalion is motorized and cannot travel in a column of foot troops or horse-drawn vehicles. It should therefore be placed behind all of these. Its mobility permits it to be up to any threatened point in a very short time.

All combat trains (except those of the artillery in the main body) march immediately in rear of their units. The rolling kitchen is considered as part of the combat train and marches with it. This would place the rolling kitchens of the artillery some six or eight miles in rear of the artillery and separated from it by a column of troops, so in this case an exception must be made and the rolling kitchens of the artillery should not accompany the combat trains when these are separated from the firing batteries.

Flank Guard

As the danger seems to be on the left flank, is a flank guard necessary?

It does not seem so. The danger, if there is any, is remote and timely warning should be received from the air force or the independent cavalry. Also, a flank guard on the left would be separated from the column by the river and later on by the hilly area near the Round Tops. While a flank guard would possibly add a feeling of security, the situation does not seem to call for one.

Rear Guard

There seems to be no reason why a rear guard should be provided. Should anything threaten from the west during the early stages of the march, it could be met by turning a force in that direction, the rear of the column continuing its march and coming under the protection of the force thus turned off. Should the danger occur when the tail of the column is well on its way towards Gettysburg, a small force could be dropped off to cover the remainder of the column.

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Third Requirement:

Advance Guard, 1st Div,
Farm House 800 yards north of TANEYTOWN, PA.,
18 Nov 19, 11:50 PM.

FIELD ORDERS
No 1

Maps: Gettysburg, 1:21120.

TROOPS

(a) *Support*
Major C
1st Bn
MG Co
1 plat Tr A 1st Cav
Pion Plat
1 sec 1 pdrs
1 sec light mortars

(b) *Reserve*
in order of march
2d Bn
3d Bn
Hq Co (less dets)
Co A Engrs
1st Bn 1st LA
4th Amb Co

1. Situation unchanged. Red cavalry patrols reported this afternoon at EMMITSBURG and FAIRFIELD. The division marches tomorrow on GETTYSBURG. Our independent cavalry reconnoiters towards EMMITSBURG and the northwest.
2. This detachment will form the advance guard of the division.
3. (a) The support will clear the road junction 1200 yards north of road junction 491 at 6:40 AM and will march via the TANEYTOWN ROAD. The bridges at HARNEY, CLEAR RIDGE FARM and BARLOW will be secured without delay. Reconnaissance will include the line of low hills two miles west of the MONOCACY RIVER. Contact with our independent cavalry will be maintained.

(b) The reserve will follow the support at 600 yards.

4. The field train will park off of the road and await further orders.
5. Messages to the head of the reserve.

D,
Col.

Copies to:
CO 1st Bn
2d Bn
3d Bn
Hq Co
Sup Co
1st Bn 1st LA
Co A Engrs
4th Amb Co
Plat Tr A 1st Cav
1st Brig
1st Div

Fourth Requirement:

Colonel D, 1st Infantry, having received the orders detailing him as advance guard commander, should immediately look over the situation, see what he has to do, and how he can best do it with the force given him.

He has, in addition to his own regiment, the 1st Battalion, 1st Light Artillery; 1 platoon, Troop A, 1st Cavalry; Company A, 1st Engineers; and 4th Ambulance Company (animal-drawn). His orders require, in addition to the usual duties of an advance guard, that he reconnoiter west of the Monocacy River, keep touch with the independent

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cavalry, and also secure the bridges near Harney and Barlow.

These duties are manifestly missions for his advance guard cavalry. He could accomplish them by dividing his small cavalry force into two parts, sending one part west of the river to reconnoiter and keep touch with the independent cavalry and the other to secure the bridges. This, however, would involve the common fault of splitting his command. It would be much preferable to keep the bulk of the platoon together, sending it ahead under its own commander, who would handle the necessary patrols to the west and to the bridges in front. With the independent cavalry operating in the direction of the enemy, there would be little danger in sending as small a force as a platoon four or five miles ahead of the infantry, this body in turn sending out small patrols for a mile or so.

A very small force of advance guard cavalry is usually assigned to the support of the advance guard and the support commander is given the necessary orders to carry out the wishes of the advance guard commander. (*Field Service Regulations,* pars. 44-46). This is because the cavalry naturally operates ahead of the infantry, or at least opposite the extreme point of the advance guard, and should therefore receive its orders for reconnaissance from and should report the result of this reconnaissance to some one well towards the head of the advance guard. Also, the support does practically all of the reconnoitering. The advance guard commander usually marches with the reserve, but goes forward in cases of emergency.

As to the formation of the advance guard, we find in the *Infantry Drill Regulations* the following on the subject:

> Par. 851:—"Generally an advance guard consisting of a battalion or more is divided primarily into a reserve and a support."
>
> Par. 852:—"In an advance guard consisting of two or more battalions, machine guns are assigned to the support and to the reserve. Light mortars, one-pounders and accompanying artillery march with the reserve. The pioneer platoon is attached to the support."
>
> Par. 854:—"The support sends forward an advance party. The advance party in turn sends a patrol called a point still farther to the front."
>
> Par. 855:—"The functions of the several fractions of the advance guard determine the distribution of the advance guard troops. The reserve constitutes the maneuvering and offensive element of the advance guard. It therefore comprises as large

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a part of the advance guard as is consistent with its own security and the preservation of its maneuvering power. The function of the support is, in principle, the security of the reserve and the offering of such resistance at various points on the front of the advance as will enable the reserve to deploy for action at points of decisive importance. It is given sufficient strength to carry out its reconnoitering and resisting function. The advance party constitutes the reconnoitering element of the support: it is made strong enough to furnish the patrols for the reconnaissance of the front of the advance and to secure the march of the support. In addition to the reconnaissance of the advance party, it will frequently be necessary to send out detached patrols from the support and reserve.

"In supports of a strength equalling or exceeding three companies, a company usually constitutes the advance party."

From this we see that a proper division of the infantry might be about as follows:

Reserve—one regiment less one battalion.
Support—one battalion less one company.
Advance party—one company less two squads.
Point—two squads.

It might also be desirable that the advance party and the support should consist of two companies each. This would be proper if there were a great deal of patrolling to be done, or if it were expected that the advance party would encounter a number of hostile parties.

Generally an advance guard is so disposed that each element is at least equal in strength to all of the elements ahead of it.

In the present situation the patrolling does not seem to be particularly difficult. Until Barlow is reached the road traverses generally the east slope of the valley, from which a good view of the west slope can be obtained. At several places where this view cannot be obtained from the road (road crossings 452 and 457, south of Harney), patrols moving a few hundred yards west can see the river and the opposite bank. With cavalry patrols on the west side of the river, the column should be able to proceed with comparatively little patrolling by the infantry.

Since machine guns have great fire power and long range they are very valuable in advance guards. They should be placed far enough forward to insure their early entrance into action. On the other hand there must be sufficient infantry in front of them to insure their security. Hence it is proper and desirable to assign machine guns to

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the support, provided of course that the support is large enough to insure their security.

Unless the situation demands it, it is not desirable to split the machine gun company, as loss of concentrated action and difficulties of supply immediately arise. Generally speaking a machine gun company in an advance guard should have at least a battalion of infantry in front of it.

In case the regimental machine gun company were assigned to the support and the situation seemed to call for it, the brigade commander would properly assign to the reserve more guns from the brigade machine gun battalion.

If the pioneer platoon is attached to the support, it should preferably march between the support and the machine gun company. Being small its presence in front of the machine guns would not materially effect the movements of the latter to the front.

Following the reserve should come the light mortars and the one-pounders. However, a one-pounder might prove very valuable with the support, in case of machine gun opposition. The one-pounder is a highly mobile weapon of great accuracy and considerable power. The platoon is so constituted that one or two guns may be detached without difficulty.

In determining the location of the battalion of artillery in the advance guard, there are several things to be considered.

Drill and Service Regulations for Field Artillery (par. 1535):

> "Artillery is usually placed in the column of march so that its early entry into action is facilitated and its security insured by the other arms. In an advance the artillery of the main body is generally well forward in the column, while the artillery of the advance guard is well to the rear of that formation, generally with the reserve. Under certain circumstances of an advance, as when the hostile resistance takes the form of annoyance by small bodies, and in a pursuit, a part or all the artillery of the advance guard may be further forward in that formation."

In this situation there is a battalion of artillery, with its combat train, assigned to an advance guard of an infantry strength of one regiment. To put the whole battalion forward with the support would be to expose the artillery to unnecessary danger before it could go into position, and thus

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to lose its great power, to separate unduly the infantry elements and to cause the support to become practically an escort for the artillery. Again, it is very rare that a battalion of infantry on a march will need all the power of a battalion of artillery in the initial stages of an engagement. It might be argued that a battery should be assigned to the support to assist in driving off small parties of the enemy. The infantry has with it machine guns and one-pounders, and should be able to handle any small parties of the enemy not equipped with artillery. However, should the enemy prove too strong, the artillery is not far behind and can be called into action in a very short time.

The artillery battalion, marching in rear of the advance guard, keeps its combat train with it. In order that the firing batteries may not be unduly separated, the battery combat trains are usually assembled and marched in rear of the battalion, an officer being designated by the battalion commander to command the combined trains on the march.

The company of engineers will not be called upon except for some particular work in their own special line and should preferably march in rear of the infantry of the reserve. Should there be a strong probability that hostile patrols will obstruct the road or damage bridges, a part of the company would march farther forward, probably with the advance party, where it would be quickly available for work. While armed with the rifle and trained in its use, the engineers are not combat troops and should not be used as such except in emergencies.

There will ordinarily be little or no work for the ambulance company until combat has begun, and then, the field of action for it is in rear of the troops. Hence it usually marches in rear of the column to which it is attached.

Generally speaking, in arranging the march order of an advance guard, as well as other columns, the various elements are distributed from head to rear in the order in which they will probably be called upon. It must be kept in mind at all times that the duties of the advance guard are, first, to provide for the security of the main body and, second, to make possible the steady, uninterrupted march of that body. If, for example, it is thought that the prin-

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cipal activity of the enemy will be in obstructing the road, or attempting to delay the marching in any similar manner, the engineers march well forward, otherwise not.

If a small hostile patrol is encountered, it should be handled by the point, or if this is not sufficient, by the advance party. Should greater resistance be encountered, the support is close by with its greater strength in men and machine guns. Should the support not be able to handle the situation, the reserve with its artillery and infantry auxiliary weapons would be called upon.

As to the distances separating the elements of the advance guard, no hard and fast rules can be given. These distances depend upon the size of the advance guard, the mission of the whole force, the character of the opposition expected and the nature of the terrain. The only rules that can be given are very general ones. The distances must be sufficient to allow the troops in rear time to prepare for action and yet not so great as to have the elements out of supporting distance of each other. To insure the latter, the distances are generally shorter in close country than in open country, and when operating against cavalry than against infantry. If too great in close country, the leading elements may be cut off and defeated before those in rear can deploy over unfavorable terrain and come to their assistance; if against cavalry, the hostile troops may have time to defeat the more advanced elements before the slower moving troops in rear can come up.

In this particular case these distances might be about as follows:

From the point to the advance party	150 to 200 yards.
From the advance party to the support	300 to 400 yards.
From the support to the reserve	500 to 600 yards.

These distances might properly be greater, but if they are, the length of the column is increased just that much more.

Each element sends forward the necessary connecting files to maintain close and continued connection with the element ahead.

Since the security of the rear elements of the advance guard must be considered, it might be that the formation

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of the support described above, that is, a point of two squads, advance party of one company, etc., would not be the best one. If strong opposition were encountered, the point might not be able to hold the enemy until the advance party had deployed. Two squads have not much power and a formed body of 200 men marching 200 yards in rear might easily be under fire before it could deploy. Such a situation might be handled by sending forward an intermediate body, such as a platoon, between the point and the advance party, the intermediate body sending out the point.

Assuming that Colonel D has decided upon the formation and distances as set forth above, let us now look into the order that he must issue. His order may be either written or verbal. It is a general rule to issue written orders if time permits. The written order eliminates to a great degree the chance for error or misunderstanding. If the situation does not permit of a formal order, the various commanders concerned may be assembled and the order dictated to them, they taking it down or making such notes as they wish to. In the present situation there is plenty of time and the advance guard commander should issue a written order.

Colonel A has been ordered to have his advance guard clear a certain point by a certain hour. First of all he must figure the length of his column on the road. Taking the units assigned to him (less the platoon of cavalry, which will not march in the column) he finds from his table of road spaces that it will cover 4630 yards. Adding to this the distances separating the elements, 200, 400 and 600 yards, he gets 5830 yards, or 66 minutes' marching at 88 yards per minute. In other words, to have his advance guard clear the initial point at 7:30 AM the point will have to pass it at 6:24 AM. However, in advance guards of the size of this one the commander usually designates the troops that are to form the support and a commander therefor, and gives him orders to clear the initial point at such time as will insure the remainder of the advance guard in proper formation clearing the same point at the hour designated. To figure this he takes the road space of the troops constituting the reserve (in this case 3700 yards).

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adds the distance separating the support from the reserve (600 yards), which gives him 4300 yards, or 50 minutes' marching. If, then, he orders the support to clear this initial point at 7:30 AM minus 50 minutes, or 6:40 o'clock, he will be sure that his whole advance will have passed the initial point at 7:30 AM.

A body of troops as large as a division marches at the rate of two and one-half miles per hour, or about 73 yards per minute. Small bodies, such as a regiment or less, should make three miles per hour, or 88 yards per minute.

In the calculations it has been assumed that the advance guard gains its distance at the rate of 88 yards per minute, and then takes up the prescribed gait for the division.

The advance guard commander can handle his small force of cavalry in either of two ways. He can assign it to the support or keep control of it himself. The method of using it will depend upon the work that it is to do. In this case the work of the cavalry platoon (reconnaissance to the west and north and securing the bridges) is outside of the activity of the support and seems to call for the direct control of the advance guard commander. On the other hand, as mentioned before, it is desirable to have the advance guard cavalry receive orders from and report to some one well to the front. Having to report to some one farther to the rear simply means more delay. There is no reason why, if given the proper orders, the support commander cannot handle the cavalry as is desired. Either way would be correct, but assigning the cavalry to the support seems to be a little better with so small a force as a platoon.

Having the advance guard started on its march, let us look a little further into the situation and follow one of the elements in its work.

In an advance guard of the size of the one considered the actual work of reconnaissance is performed largely by the advance party. The support and the reserve, being bodies of considerable size and composed of various arms, conduct their march much in the manner of organizations in the main body. Connecting files are sent forward to connect with the body in front and, if the situation calls for it,

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patrols are occasionally sent out to the flanks by the support and the reserve.

The advance guard cavalry is assigned to the support and may be handled directly by the support commander, or attached by him to the advance party to operate under the orders of the commander of that body. Since the cavalry operates well in advance, it should have some one well to the front to receive orders from and to report to. This is usually the commander of the advance party in large advance guards. In the present case the advance guard cavalry is given definite work to do, i. e., to patrol the west bank of the Monocacy River and secure the bridges, hence it might be well to assign it to the advance party.

Notwithstanding that both independent cavalry and advance guard cavalry are out to the front, the infantry of the advance guard must do its own close-in reconnaissance. Small hostile patrols can hide easily and either observe or harass the column, and these must be searched for by infantry patrols.

The advance guard commander should, of course, have a map of the route over which he is to march. Before starting he should study the map carefully and plan generally the manner in which he will handle the reconnaissance.

Looking at the map he notes the small patch of woods near road junction 491. This is very close to the camp and is on low ground, so that it is not likely to be used by hostile patrols. However, should it be desired to have it reconnoitered, this could be done by sending three or four men through it via road junction 491, rejoining the column at road junction 510. Sending a patrol along this road west of 491 would accomplish little, for the road is in a ravine and the men could see little. Also, a view down this road and of the country to the west can be obtained from the farm house 300 yards southeast of 491.

Near Piney Creek Church there is a larger patch of woods that should be reconnoitered. This can readily be done by having a patrol work along the farm road to the west and north, rejoining just south of Harney. The patrol would send men through the woods. From the long ridge south of Harney, it would get a good view of the country to the west and southwest.

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The advance guard cavalry, which has in the meantime secured the bridge at Harney, would have searched the country in that vicinity.

The country beyond the Monocacy River can be seen from the road near Harney, and this condition holds true until crossroads 452 is reached. Here the low hill on the left (hill 452) cuts off any view to the west. There are also scattered clumps of trees just north of this hill which must be searched. A patrol sent west from crossroads 452 to hill 452, thence north through the trees, rejoining at 457, would be able to get a good view of the whole area in the bend of the river with a minimum of patrolling.

It should be constantly borne in mind that patrolling on foot, especially off of the roads, is very fatiguing work and must be reduced to the minimum consistent with proper reconnaissance; also that patrols sent far out on the flanks, or given long, difficult areas to patrol get behind the body from which they were sent out and are thus delayed in making their reports.

From north of crossroads 457 to Barlow the road offers an unobstructed view to the west. While the woods on the other side of the creek west of road junction 387 offer concealment for observation patrols, nothing is to be feared from that place in the way of harassing. Fire from the hills west of crossroads 457 takes these woods in reverse, and from the vicinity of road junction 395 in enfilade.

It would probably be desirable to have these woods reconnoitered by infantry patrols, but let us see what that would mean. From the map it is seen that such patrols would have to cross the creek at Clear Ridge Farm and rejoin either at Mount Joy Church or Barlow. While the column is making about two and one-half miles to Barlow, the patrols would have to cover about four miles, one mile of it through woods and across country. Hence it could be expected that the patrol would rejoin the column about one hour's march behind the party that sent it out.

As the column advances on the west bank of the creek, the country is open and practically in view from the road within the limits of effective rifle fire. The road running north, 472—Ballinger—Hoffman, would properly be reconnoitered by the advance guard cavalry.

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Hill 528 (just west of road junction 450) should be visited by a patrol, as should the Round Tops, though the latter should be taken care of by mounted men, owing to the time and labor necessary for foot troops to gain the top and rejoin the column.

From Barlow north the roads offer the opportunity of sending out a small left flank guard from the advance guard. While this flank guard would not be separated from the advance guard by an excessive distance (about one mile), that distance is over extremely difficult terrain, and should the flank guard unexpectedly encounter a strong Red cavalry force, it might be severely handled before assistance could reach it. What is desired is information of this ground and this can be easily obtained by patrols to the top of the Round Tops.

It should not be inferred that a flank guard marching parallel to the column is never used. When the roads and the terrain between permit of this formation it is a very simple and convenient way of obtaining security of the flank, especially if the main body is not excessively long.

TRAINS

The trains of the division will be considered in the following order, and formations, uses, and methods of handling them will be discussed:

Combat,
Field,
Division.

Combat

Par. 275, *Field Service Regulations*, states:

> "Combat trains include all personnel, vehicles and animals attached to the organizations for transporting ammunition reserve and special equipment required during combat, including the mule or cart carrying sanitary first aid equipment. To them also are attached those vehicles required for the technical service of the engineer and signal troops.
>
> "Combat trains remain at all times with the unit to which attached and follow it into action. In the cavalry and field artillery it may be advisable temporarily to separate combat trains from the troops."

It is necessary to supply men engaged in actual combat with hot meals if such a thing is possible. The effect that

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this has on the morale is so great that it cannot be neglected. In the past it has been assumed that the men would do their own cooking except when it was possible to bring up the ration wagon containing the field range or other cooking arrangements. The World War has demonstrated the falsity of this assumption, and the rolling kitchen has been adopted as part of the combat train. This kitchen carries one day's field rations and marches with the combat train of all troops. In many cases, however, the combat trains of the artillery are separated from the firing batteries, and then the kitchens accompany the batteries and not the combat trains.

Often the work of the cavalry is such as to forbid its being handicapped by any wheeled vehicles whatever. In such cases the combat trains, including the rolling kitchens, are left behind and other arrangements must be made for feeding the men. If it is practicable, the kitchens are pushed forward to certain selected points where the troops may be fed, or, if this is not practicable, the men must carry their own food in addition to the two days' reserve. However, to avoid having the men cook their own rations for any considerable length of time, each troop has a spare animal for carrying some rations and a few simple cooking utensils.

On the march the combat trains are handled according to circumstances, the usual procedure being to have them assembled by battalions and marched immediately in rear of their respective battalions. When combat is imminent, those of the artillery and machine gun battalions, upon such notice, usually come under the orders of their respective unit commanders.

In the infantry battalion, as it is rather the exception to split a battalion, the combat train remains under the orders of the battalion commander. He controls its position and gives the necessary orders for unloading the ammunition and for the subsequent resupply.

It is therefore seen that in forces of any size the commander of the whole force has little concern with the combat trains, since they are handled by the commanders of smaller units.

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Field Trains

The field train includes all the vehicles used for carrying rations and baggage, the water cart and in some cases a few special wagons. The ration cart contains the one day's reserve rations, while the ration and baggage section contains the baggage and one day's field ration and grain.

The soldier carries with him two days' reserve rations as well as the unconsumed noon meal of field ration.

Par. 277, *Field Service Regulations*, states:

> "When an organization is operating independently, the field trains are under the direct control of the organization commander. When organizations are not operating independently, field trains are ordinarily ordered to be grouped by the division commander, and the senior line officer present with the train assumes command and moves it as directed by superior authority. When the field trains are ordered grouped with the divisional trains, they are, for the time being, under the orders of the commander of trains.
>
> "The field trains are not again placed at the disposition of the organization until so ordered by the division commander. During combat the division commander holds the grouped trains well to the rear, thus relieving the roads of unnecessary vehicles."

In the late afternoon, or at the end of a march or close of a combat the division commander directs the field trains to move up immediately in rear of the troops and informs commanding officers of this fact. The commanding officers concerned immediately send guides to conduct the wagons to the organizations. The change in organization of the field train should be noted. At present the baggage and the field rations are on the same wagons and would, of course, go forward to the troops. The ration cart, carrying reserve rations, need not be thus sent forward.

In the situation under discussion, will the field train be needed? It certainly will not be until night. Combat is possible to some extent on the line of march, with a possibility of considerable on the flank. The division commander does not want to have his organizations burdened and the roads blocked with field trains. It is more convenient to have the wagons of the field trains well up in the column, following their respective organizations if possible, but if combat is probable or possible, there is no place for these trains nearer than the tail of the division. These trains

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can march either as a separate unit in rear of the division or as part of the division trains under the commander of trains.

The next point to determine is where these trains shall march. In rear of the division or in rear of the divisional trains? Again this depends upon the situation. Which will be needed first? If the command is marching into combat, at least a part of the division trains will be called upon first. Another point is that the field trains are horse-drawn and necessarily much slower on the march than the motorized section of the divisional trains. In the case that is being considered, while the division is not actually marching into combat, it is marching to a position immediately in rear of the Blue left. There is also the chance of combat to the left. Therefore it would appear preferable to have the field trains march behind the divisional trains. They can reach the troops in camp near Gettysburg sometime during the evening, and even if this were not possible the men have their two days' reserve rations, as well as the one day's field rations in the rolling kitchen.

Divisional Trains

It will be noted in the organization of the divisional trains, that the ammunition and sanitary trains each have a motorized section and a horse-drawn section, while the engineer train has both wagons and trucks. It is obvious that these two classes of vehicles cannot travel in the same column, so it is necessary to work out an order of march that will permit of having the proper supplies sent forward as neeeded and still keep these two classes of vehicles separated.

In the ammunition train small arms and 75-mm. ammunition is carried on horse-drawn vehicles as well as on trucks, but this is not the case with the 155-mm. ammunition, which is carried only in trucks.

Like all other problems, that of handling the trains of a division depends upon the situation. The rate of march has, of course, a great influence in determining how these trains shall operate, as has the condition of the road net in any possible theatre of action.

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If the division is making a long march, a good plan is to have the horse-drawn sections follow the division at the proper distance while the motorized section moves by long bounds. These bounds are determined by the distances over which the sections can operate properly, as well as by the location of the refilling points.

In this particular case there seems to be no reason why the division trains should not operate from Taneytown. The distance to Gettysburg is short for motor vehicles and Taneytown is obviously the railhead for the division.

The horse-drawn section of the ammunition train may be used in several ways, depending upon the particular situation. It may be held as a mobile reserve, it may operate between the combat trains and the division trains and even to the batteries in some cases, or it may be used as a supplement to the division trains.

The following is quoted from the pamphlet on *The Organization of the Infantry Division* and gives a good idea of how the various trains of the division may be handled:

> "Except for the sanitary train, there are three echelons of trains in the division from front to rear, i. e., combat—field—division. In theory, each echelon in rear keeps the echelon in front filled. However, the above basis is not adhered to when time and labor can be saved by any modification. Therefore, frequently the divisional ammunition and supply trains may function direct with the combat train, the field train being held as a reserve. So, also, the division train may be held as a reserve, the field train being filled directly by the columns of the services of supply or line of communications.
>
> "In campaign there are three general situations to be considered; i. e., a march—a battle—in camp.
>
> "In a march, several elements of the trains, such as ambulance companies, will be released and placed in the advance guard and in the main body. The rest of the trains will function under the commander of trains who receives orders from G1.
>
> "In a battle, the initial orders of the division commander (administrative order) will release some trains and place them under the control of such officers as the artillery commander, the division surgeon and the division engineer. The trains not released continue to function under the commander of trains.
>
> "In camp, all the division trains generally continue to function under the commander of trains. The ammunition train can be placed under the artillery commander for training, etc., if the division commander sees fit.
>
> "However, it must be kept in mind that any and all trains are available for any and all work. They are used by G1 as a pool to meet all situations."

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(B-2) SECURITY ON THE MARCH—FLANK GUARD

LIEUTENANT COLONEL C. M. BUNDEL,
Field Artillery

Continuation of the situation in Chapter III (B)

Special Situation (Blue):

The division marched as ordered, the advance guard clearing the initial point at 7:30 AM.

Some rifle firing had been heard far to the west during the march.

At Harney, General A, who had ridden forward to observe the march of the division, received a telegram from the army commander (forwarded from division headquarters at Taneytown) to the effect that a Red division had left Waynesboro that morning and was marching east, that the 2d Division would be stopped at Taneytown and move towards Emmitsburg, and that he was to expedite his march, as reports indicated a concentration in rear of the Red right.

At 8:40 AM, General A, still at Harney, received a message dropped by an airplane at Taneytown and forwarded by telephone, stating that at 8:00 AM the head of a long Red column marching east was about three miles west of Blue Ridge Summit. The tail of the column had not yet left its camp near Waynesboro. At 8:20 AM a column of trucks was standing on the road through Emmitsburg, head near road junction 488 (one mile northeast of Emmitsburg), tail near hill 546 (one mile northwest of Emmitsburg). Troops had detrucked and were deploying on both sides of the Emmitsburg Road toward Middle Creek, which was being held by several troops of cavalry.

Several minutes later General A was handed a message forwarded by motorcycle by the advance guard commander, which read as follows:

Ind Cav,
FAIRPLAY,
19 Nov 19, 8:20 AM.

CG 1st Div,
By Messenger.

Encountered Red infantry, estimated at one regiment and machine gun company, in trucks near EMMITSBURG. Am holding MIDDLE CREEK

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near hill 543 southwest of FAIRPLAY. When forced back will continue delaying Reds at MARSH CREEK. Have destroyed bridges on MIDDLE CREEK between EMMITSBURG—TANEYTOWN road and RHODES MILL.

M,
Maj.

Weather—Clear.

Required:

1. Orders as actually issued by General A.
2. Reasons for action taken.
3. A statement of the detailed plan of action decided upon by the flank guard commander.

Second Requirement:

General A's first task is to determine fairly accurately at least, the location of the various elements of the division at 8:40 AM. For the advance guard to have cleared the initial point at 7:30 AM, the point would have had to pass this place at about 6:25 AM. At 8:40 it would be near the stream just north of Willow Grove S. H., the advance party at this school house, the head of the support at Barlow, the head of the reserve at Mount Joy Church, the tail of the reserve about 1000 yards north of Harney, the head of main body near Harney, the rear elements of the main body not yet having started.

Disregarding the trains for the moment it is found that the road space of the main body (the division, less the advance guard) is about 13½ miles or 5½ hours of marching. Of this 13½ miles of troops in the main body, about 4 miles are on the road and about 9½ miles are still in camp.

At 8:00 AM, the head of the Red division was 3 miles west of Blue Ridge Summit. It should reach that place by 9:00 o'clock. It would then be 14 miles from Fairplay and at least 16½ miles from a position from which it could reach the Blue division with small arms fire. Assuming that the Reds advanced steadily at a rate of 2½ miles per hour, they could reach such a position in 6½ hours, or at 3:30 PM.

It must now be figured where the main body of the Blue division will be at 2:30 PM. In six and one-half hours the head of the division will have reached Gettysburg and the tail will be 7 miles from the starting point, or at Barlow,

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safely past any danger point so far as small arms fire is concerned.

Of course the Reds could reach the division long before that time with artillery fire, but it would be only on the rear elements. It would probably cause some losses and might interrupt the march of these elements, but in itself would not be sufficient to stop the march. If the fire became effective these elements would leave the main road, either by marching across country or by using the numerous side roads. Except with exceedingly accurate maps, long range artillery fire is effective only when there is opportunity for direct observation, and a body of troops concealed from view has little to fear from it.

Thus it is seen that, with the possible exception of some long range artillery fire, General A has little to fear from the Red division. In addition, the 2d Division is to detrain at Taneytown and move against these Reds, who would not dare to attack the 1st Division while threatened on the flank by the 2d Division.

A cause for worry on General A's part is the Red force in trucks, which the Blue independent cavalry is now opposing near Fairfield. It is reported by the independent cavalry commander as about one regiment. His estimate is substantiated by the report of the airplane observer. From road junction 488 to hill 546 is about 4400 yards, or about the road space of 220 trucks at 20 yards per truck. This would indicate about one regiment, the trucks averaging about 15 equipped men (deduction must be made for necessary kitchen, supply, repair and tank trucks).

This force is not large enough to interfere seriously with the division, but it is very mobile and if it should succeed in decisively defeating the independent cavalry it could probably cause considerable delay to the division by harassing the column at favorable points and forcing the deployment of some units.

The independent cavalry has been delaying this force at Middle Creek since 8:00 o'clock, but it is not probable that it can hold its position very much longer in the face of so greatly superior a force. Middle Creek does not appear to be much of an obstacle even though in flood, and a

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determined enemy would soon be able to cross it. However, should the Reds not be able to cross, there is nothing to prevent them from sending a part of their force in trucks to the north, where the bridges have not been destroyed. This would put Red troops on the flank of the Blue cavalry.

In order to handle this Red force flank protection must be provided for the division.

General A thus finds himself confronted with practically two problems. He must get as much of his division as possible to Gettysburg promptly, and he must detach a sufficient flank guard to prevent this Red force from interrupting the march of the division.

It is obvious that he must send as much as a regiment of infantry to the flank and that it must get there promptly. To send a smaller force would be to invite defeat, or at least a failure to accomplish the mission. An infantry regiment would soon find itself badly handicapped by the superior mobility of the Reds. This suggests sending back for sufficient trucks to carry the regiment. Such a plan might prove advantageous provided the trucks were empty and that the road permitted of their rapid movement forward past the division. However, the question of loading a regiment on trucks under these circumstances is not so simple as it appears. The road space of a column of trucks sufficient to carry a regiment is very much greater than that of a regiment on the march, which would cause delay and confusion in getting the men distributed along the truck column. This movement would also probably interfere with the march of the division. All of these things are to be avoided if possible.

General A has another means for combatting this mobile force of Red infantry. His artillery with its long range should come in very useful in just such a situation as this. From position 2000 or 3000 yards west of the Monocacy it could reach the outskirts of Emmitsburg with a range of 6000 yards, which is not excessive. It could easily prevent a movement of trucks north on the Emmitsburg Road and could make it very dangerous for the truck column if it remained in its present position. Positions farther to the west would enable it to cover the roads leading north from Emmitsburg.

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With the trucks unable to approach closer than 4000 or 5000 yards, the Red infantry would practically lose its superior mobility. It would, of course still be highly mobile once it were in the trucks, but for maneuvering within the danger zone for the division it would virtually be limited to movement on foot, and the Blue infantry could easily meet its movements.

Going back again to the division, it is seen that the head of the main body is near Harney, with the advance guard artillery a short distance ahead. A good road leads directly to Fairplay, about 5½ miles away. The infantry could reach Fairplay in about two hours, the artillery battalion about one-half hour later. The artillery could, of course, make use of positions much to the east of Fairplay, probably in the fields south of hill 728, using that hill as an observation post. From this position it could flank the Red infantry and fire upon the trucks near Emmitsburg.

However, there appear to be several objections to this plan. The taking of a regiment of infantry and a battalion of artillery out of the column would leave a gap of about two miles, unless the leading troops waited for those in rear to catch up. It would also call for the throwing together of a new command, infantry, artillery and sanitary train, just before it went into action. This is not a good plan and should be avoided if possible. Even with thoroughly trained units in action the difficulties of command are serious enough. To these difficulties should not be added those which invariably result when units are working together for the first time. Furthermore, a force such as the one described would be delayed a short time while it put out an advance guard.

General A can accomplish the same object in another way. The advance guard is a complete organization, infantry, artillery, engineers and sanitary train, already under one commander. It is for the moment, practically a small self-contained unit, that is, one capable of acting independently. In addition it is quite favorably located for a movement toward the Red force. By turning west at Mt. Joy Church or Barlow, it can reach Fairplay in about one and one-half hours. The independent cavalry may not be able to hold the

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Reds at Middle Creek for this length of time, but it should be able to gain considerable time by delaying them on the open ground south of Fairplay and Marsh Creek.

Turning at Mt. Joy Church gives the Blues the opportunity to advance by the road junction at 911, either to the north or the south of Fairplay. Should the cavalry still be holding the Reds at Middle Creek, the ridge running southeast from Fairplay offers good cover behind which to deploy the regiment. Hill 728 would make a good observation post for the artillery in position northeast of that hill.

By the time General A has studied the situation and reached a decision, the head of the reserve will probably have passed Mt. Joy Church, while the support will be north of Rock Creek. It would be possible, of course, to turn the advance guard at Mt. Joy Church, even if part of it had passed that place, but this should be avoided as it complicates the movement and may cause some confusion.

By turning at Barlow but little time would be lost, Marsh Creek could be reached about as promptly, and the order of march would not be disturbed, except for the support. The artillery could go into position in the fields west of Ballinger Farm, with observation posts on the hills in front. To save time it could turn at Mt. Joy Church and move to its position at an increased gait.

The support, which has already passed Barlow, could be halted, assembled to the rear, and could either join the tail of the advance guard as it passed Barlow, or could march west on the Willow Grove S. H.—Hoffman road, joining the battalion at some point farther west.

If the advance guard is turned off to the west, the main body will of course be without any covering force in front and one must be provided. It will follow the advance guard to Barlow and from there on will need some protection in front. A small force would appear to be sufficient, probably a battalion. The leading unit of the main body should be required to furnish this. If a battalion is used, a short delay will be necessary (about 15 minutes) in which to allow the new advance guard to gain its distance to the front. This will mean halting the division for that length of time but cannot be avoided, as infantry can increase its gait only for very short distances.

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A few mounted men should be attached to this new advance guard, as there is still the very hilly country around the Round Tops to be reconnoitered, and this is manifestly the duty of mounted rather than dismounted men.

First Requirement:

General A's orders to the advance guard commander (by telephone):

8:55 AM "Our independent cavalry is delaying a Red regiment with machine guns, just southeast of Fairplay. The Reds came through Emmitsburg in trucks. A Red division is marching east from Waynesboro. Our 2d Division detrains at Taneytown today and moves against this Red division. Our division will continue its march. You will move the advance guard on Fairplay and cover the march of the division. Have a NCO and eight troopers report to General C (commanding the leading brigade of the main body) when he reaches Barlow."

General A's orders to the commander of the leading element of the main body (by aid):

9:00 AM "Explain the situation to General C and direct him to continue the march and when he reaches Barlow to put out an advance guard for the division. Tell him that two squads of cavalry will report to him at Barlow for duty with his advance guard."

Third Requirement:

The situation confronting the advance guard commander when he receives General A's order will now be taken up.

The advance guard cavalry is doubtless several miles ahead of the infantry, with patrols on the Taneytown Road, on the road one mile west, and on the Emmitsburg Road, all of which connect with the independent cavalry. A few men are probably with the advance party. The point of the advance guard has reached road junction 450, the head of the support the creek just north of Willow Grove S. H., and the reserve is passing through Barlow.

The advance guard commander's first step should be to get the latest information from the independent cavalry. He should not, of course, go blundering towards Fairplay, without knowing what is taking place there. Many things may have happened since the last message came in from the cavalry at 8:20 AM. After leaving Barlow, he will

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have the choice of roads leading southwest, west, or northwest; and the one that he will take will, of course, depend upon the situation at Fairplay. Time is a very important element right now. The quickest method of getting in touch with the independent cavalry is by sending a motorcycle messenger. A motorcycle could make Fairplay and return in a very few minutes. When Colonel D gets this latest information he can decide upon his route, and not before.

He must also recall his advance guard cavalry as soon as possible, as it will be needed to cover the new front of his column. This could best be done by a motorcycle messenger.

The support of the advance guard has passed the turning point. This must be stopped and given orders to rejoin. Here again a motorcycle wil prove the best means of sending the message.

The support can be allowed to continue on to road junction 469 and turn west at that point, rejoining by the roads to the west and south. However, this means a march of about four miles, or about one hour and a half of marching. The support can be stopped and assembled to the rear, and either join the tail of the column at Barlow, or march west by the 432—Hoffman road. If it used the latter road, the support would not interfere with the march of the division, as that body would not reach Barlow until after the tail of the advance guard had turned west. Using this road also has several other advantages. It avoids having the support standing idle until it can join the rear of the reserves, and it also partially deploys Colonel D's column.

While Colonel D does not know yet just where he will go or how he will deploy his troops, having his force in two columns separated by a short distance is certainly no disadvantage. The support could be marched straight on to Fairplay or held back as a reserve, no matter what the direction in which the remaining troops are used.

Colonel D's small force now becomes a body acting independently, at least to a certain degree, and must put out its own advance guard. For a force of the size of Colonel D's this should not exceed a battalion. The leading battalion

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of the reserve should be used for the purpose and orders accordingly sent at once to the battalion commander, who is now passing through Barlow.

Colonel D should preferably send his orders by an officer who can explain the situation to the battalion commander. These orders should include the caution that there must be no stopping of the march, as otherwise the division behind would be delayed. The advance guard must gain its distances by increasing the gait. This increase of gait is hard on infantry, but the distances are short.

Machine guns should be with Colonel D's new advance guard. They are now with the support and marching in rear of it, but a few hundred yards away. The machine guns being animal-drawn and the men not heavily loaded, it is reasonable to expect them to cover short distances at a much greater speed than infantry, so there is no reason why the company cannot turn about and rapidly gain its position in rear of the battalion that is to act as the new advance guard.

The question now arises, what shall be done with the artillery battalion? Shall it continue on behind the regiment or shall it be turned west at Mt. Joy Church so that it can get into action more rapidly?

By turning the artillery at Mt. Joy Church Colonel D would have his force advancing towards the enemy in three columns, one consisting of the old support, one of the old reserve and the third and closest to the enemy, of the artillery. While there is not much danger that the enemy may be in the vicinity of the road the artillery would take, there is the chance of it. Artillery on the march is very vulnerable and long range rifle or machine gun fire might easily put enough horses out of commission to cripple the battalion seriously.

Colonel D's main concern is to prevent the Red forces from interfering with the march of the division, not to prevent the Reds forcing a crossing of Middle Creek or even Marsh Creek. As long as he keeps these Reds away from the division he has accomplished his mission. The situation is too uncertain for him to begin deploying his entire force and it would appear best to keep his artillery in rear of his infantry for the present. Should he turn it to the west at Mt. Joy Church, it would be necessary to put a consid-

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erable force of infantry ahead of it for purposes of security. A premature deployment of a force may be an entirely incorrect one and may necessitate a complete rearrangement of the units. This, of course, is something to be avoided.

The engineer troops will not be needed for some time at least and should continue in rear of the infantry.

As Colonel D does not know what action will take place or where it will occur, he cannot give any special orders to the ambulance company, so he lets it march at the tail of the column. Its work is in rear of the troops and does not begin until the combat has opened.

Having decided on how he will march his force and having sent out the necessary orders, Colonel D should begin to look into the situation and plan his future actions. His orders give him some information of the enemy and direct him to cover the march of the division. To do this he must at least contain the Red force now opposing the independent cavalry. The best way of keeping this force away from the division is, manifestly, to defeat it. The Red force is of about his own strength in infantry but has no artillery, and can therefore not be expected to stand for any length of time against him. The Reds without artillery are helpless, as of course they cannot reach Colonel D's artillery.

Assuming for the moment that Colonel D succeeds in driving off this Red force, what will be his actions after that time? His orders require him to cover the march of the division. This means that the whole flank of the division must be protected. Colonel D's force must not, however, be strung out along the whole length of the division. That would be a very serious tactical error, involving the maximum of dispersion.

If driven off by Colonel D, what would the Red force be apt to do? If not seriously defeated, it might readily move either north or south and attempt to harass the division, provided of course that Colonel D could not reach it with his artillery.

Assuming, for the moment, that Colonel D is able to drive off this Red force, what action should he then take to secure the march of the division?

He might follow the Reds in their retirement. This, however, would not accomplish much, as the Reds being

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mounted in trucks could soon run away from him. If the Reds retired towards Emmitsburg, which is their probable direction of retirement, he might move farther south so as to cover the Emmitsburg—Taneytown road. While this would probably protect the division from any annoyance via this road, it leaves the other end of the column unprotected. If he moved to the north, he would leave the rear of the column without protection. An attempt to move parallel to the division would simply leave both ends of it uncovered, as the division column is too long to be protected in this way.

Colonel D cannot hope to protect the division absolutely; about the best that he can hope to do is to prevent annoyance by any force large enough to interfere seriously with the march.

For this purpose it would appear that his best course would be to take up a position in readiness at the most advantageous point along the line of march, one from which he could move readily in any direction. Such a position seems to exist in the neighborhood of Fairplay or Greenmount. The low, flat ridge running parallel to and just east of Marsh Creek and Willoughby Run offers a good position to defend and behind which to deploy his forces in case the Reds moved in that direction.

The terrain south of the line of hills running generally south from Greenmount offers a similar terrain.

Once in a position near Greenmount, for example, Colonel D would simply hold his force in readiness to move, all the while keeping up a vigorous reconnaissance for the purpose of determining the movements of the Reds. He still has about twenty cavalrymen with him and they would be used for this purpose.

The message received from the commander of the independent cavalry indicates that he is carrying out his duties in a satisfactory manner. He has located the hostile force, and finding that it threatened the division, is delaying it with his whole force.

The question now arises, what shall be done with this independent cavalry when the force sent out from the division takes over the situation? Shall it be assigned to this

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force and operate with it, or shall it continue its work as independent cavalry?

By assigning it to the flank guard it would doubtless perform good work and add materially to the effectiveness of this flank guard. If the Red force in trucks were all that might be encountered, this would be the best disposition of the cavalry squadron. But is it all? Has the division commander any assurance that no other Reds are or will be operating in the country to the west? The fact that none have been reported is no certain indication that none are there. In other words the absence of information of the enemy never warrants the assumption that no enemy is present. In addition, the Red force in trucks, although driven away, may easily move to other points, and the cavalry is the best force available for keeping it under observation and delaying it until assistance can be brought up.

The remainder of the territory to the west and northwest must be reconnoitered, even though one Red force has been encountered. There is the Red division in the pass. While of course this should be under constant observation by the air service, the cavalry must also watch it. It is but reasonable to assume that this Red division has some cavalry of its own, which should be located at the first possible moment.

However, it should not be necessary to send any further orders to the commander of the independent cavalry if it is decided not to change his work. He has his orders as independent cavalry and should take them up again as soon as the Red force opposing him is taken care of by the flank guard.

(B-3) SECURITY ON THE MARCH—REAR GUARD

LIEUTENANT COLONEL C. M. BUNDEL,
Field Artillery

Continuation of the situation in Chapter II (B) and (C)

Special Situation (Blue):

The 1st Division reached Gettysburg during the afternoon and early evening of November 19 and bivouacked as follows:

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1st Brigade:	South of Seminary Ridge and west of the railroad spur.
2d Brigade 1st Engineers	West of Gettysburg, on both sides of the Hagerstown Road.
1st Field Artillery Brigade 1st Field Signal Battalion 1st Machine Gun Battalion Ambulance companies	South of Gettysburg and east of the railroad spur.

1st Squadron, 1st Cavalry, road junction 1 mile north of N. Grist house at Longville.

1st Observation Squadron at Frederick, preparing to move to Taneytown.

The Red force in trucks had been driven back west of Emmitsburg. The 2d Division, hurriedly detrained at Taneytown, had caught the Red division before it had cleared the pass west of Emmitsburg and driven it back. It (2d Division) is now heavily engaged in securing the heights east of the mouth of the pass.

Both armies have been reinforced and the fighting has been heavy. Reds are known to be massing troops against the Blue left.

At 7:00 PM, November 20th, General A receives an order from the army commander which contains the following:

"The Reds have attacked repeatedly but the Blue line has held.

"The Reds have carefully prepared for a renewal of the attack tomorrow morning at daylight. At least two Red divisions have been moved to the vicinity of Arendtsville.

"A regiment of Red cavalry has been observed that afternoon near Cashtown. There are no Reds in the pass west of Cashtown.

"The Blue army will retire during the night of November 20-21 to a position through New Oxford, Bonneauville, Two Taverns and Harney. The 10th Corps, coming from Baltimore, is to take over the sector from Two Taverns to the west on the afternoon of November 21.

"The 2d Division has succeeded in blocking the exits of the Waynesboro pass by holding the ridge through Liberty Mills and McKee Knob, and covering the roads near Jacks Mountain by howitzer fire, but is threatened with having its left flank turned by the Reds."

The army commander's order also contains this paragraph:

"The 1st Division will march on Emmitsburg at 4:00 AM, 21 November and support the 2d Division. Upon arrival at Emmitsburg, the Commanding General, 1st Division, will assume

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command of both divisions and will prevent the Reds from leaving the mountains.

"Railhead—Keymar."

The field trains are with the division, having joined during the night of November 19.

Required:

1. Orders as actually issued by General A.
2. Reasons for action taken.
3. Orders as actually issued by the rear guard commander.
4. Reasons for action taken.

NOTE:—Weather clear.

Discussion

First Requirement:

1st Div,
GETTYSBURG, PA.,
20 Nov 19, 8:30 PM.

FIELD ORDERS }
No — }
Map: Gettysburg, 1:21120.

TROOPS

(a) Air Service
Maj S
1st Obsn Sq

(b) Advance Guard
Maj I
1 plat Tr C 1st Cav
1st Bn 1st Inf

(c) Right Column, in order of march
DHQ
1st Brig (less 1 bn)
1st FA Brig (less 2d LA, 3d HvA and C Tns)
1st MG Bn
3d Amb Co

(d) Left Column, in order of march
Brig Gen D
1st Engrs (less 1 co)
3d HvA
4th Inf
1st and 2d Amb Cos

(e) Rear Guard
Brig Gen B
1st Sq 1st Cav (less dets)
2d Brig (less 1 regt)
2d LA
Co B Engrs
4th Amb Co

1. The hostile attacks have been stopped. A Red cavalry regiment is reported near CASHTOWN. Our army withdraws tonight to a position to the southeast. The 10th Corps will extend the new line tomorrow from TWO TAVERNS to HARNEY. The 2d Div is holding the Reds near EMMITSBURG.
2. This division marches on EMMITSBURG tomorrow to support the 2d Div.
3. (a) The 1st Obsn Sq will reconnoiter at daylight 21 Nov 19 the mountain pass west of EMMITSBURG, the country between the mountains and the EMMITSBURG ROAD, and the right of the Red army. The country north and northwest of GETTYSBURG will be constantly observed and any movements of the Reds will be reported without delay.

(b) The advance guard will clear the crossing of the railroad and the EMMITSBURG ROAD near the N. CODORI HOUSE at 4:20 AM, precede the right column by 800 yards and march via the EMMITSBURG ROAD. Reconnaissance to EMMITSBURG.

(c) The head of the right column will clear the crossing of the railroad

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(f) Signal Troops
Maj R
1st F Sig Bn

spur and the EMMITSBURG ROAD near N. CODORI HOUSE at 4:30 AM, and march via the EMMITSBURG ROAD.

(d) The head of the left column will clear crossroads 570 at the NATIONAL CEMETERY at 4:20 AM and march via the 375W —CENTENNIAL S. H.—401—444—CUMP'S MILL road. Contact will be maintained with the right column and the left of our army.

(e) The rear guard will follow the right column at one mile. Reconnaissance towards FAIRFIELD, CASHTOWN, MUMMASBURG and GOLDENVILLE.

(f) The 1st F Sig Bn will march between the advance guard and the right column.

4. The head of the assembled F Tns of the division will clear road junction 545, one mile south of the NATIONAL CEMETERY at 3:00 AM and march via the WILLOW GROVE S. H.—375W road, thence by roads west of the MONOCACY RIVER to a position in the vicinity of BRIDGEPORT, where they will report position and await orders.

5. Messages to GETTYSBURG until 8:00 AM, from 8:00 AM until 12:00 noon to GREENMOUNT, after 12:00 noon to EMMITSBURG. Communication will be maintained along the columns and with the rear guard. All radio sets will be set up and report to these headquarters at each hourly halt.

A,
Maj Gen.

Copies to:

Div Staff
CO 1st Brig
2d Brig
1st FA Brig
1st Sq 1st Cav
1st Obsn Sq
1st Engrs
1st F Sig Bn
Div Tns
CO Amb Sec Sn Tn
CO Div F Tns
CG 1st Army

NOTE:—It is to be noted that in the following discussion the western column is referred to as the right column and the eastern column as the left. *Field Service Regulations* prescribe that the "front" is always toward the enemy. In the case under consideration the enemy is found in two directions. The "front" is in the direction of one or the other of these hostile bodies, which one, it will be necessary to determine by considering the mission of General A. He is detailing a force to take care of the Red force from which he is marching away, but his chief concern, so far as the principal part of his division is concerned, is the hostile force toward which he is marching. Therefore, his "front" is toward Emmitsburg.

Second Requirement:

Taking up the situation that now confronts General A, it is seen that during the night the army withdraws to a new position some eight or nine miles in rear, presumably to obtain a position that is not dominated by the mountains, and, possibly to avoid the carefully planned attack of the Reds.

In its retirement the army will not, of course, entirely denude its present position of troops, but will leave covering detachments, probably with a great many machine guns, to protect the various columns in their march to the rear.

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The movement is made at night for better concealment and doubtless in the hope that it will be unobserved by the Reds.

Should it be successful in this respect and the Red attack take place as expected, the five or six miles between the Reds and Gettysburg would be covered by them in a comparatively short time, that is, short as compared with the time it would take them to cover it against determined resistance.

The left of the present Blue line retires to the vicinity of Two Taverns and will be well on its way before the 1st Division gets started. The remainder of the new line west of Two Taverns is to be held by troops moving up from the southeast, so General A in his move to Emmitsburg finds himself practically operating alone until the 2d Division is reached.

General A must have his division on the road before the infantry of the Red army reaches Gettysburg, otherwise he may become involved and unable to get away. This immediately brings up the question of how he shall march his division.

The roads leading towards Emmitsburg favor a one-column march via the Emmitsburg Road, and if there were no occasion for haste, that formation would probably be adopted. However, General A is required to remain in his present position until 4:00 AM (probably to protect the left of the retiring army). If he marches his division in one column, it will be about 11:30 AM before the last troops are on the road (counting the distance between covering detachments), about five hours after the Red attack had started.

The road net west of the Emmitsburg Road is not favorable for sending a column that way, nor would such a formation favor General A's march towards the left of the 2d Division. The Taneytown Road as far as Barlow can be used. To avoid having the two columns separated by the Monocacy River the column should then bear off to the southwest via Centennial S. H. and Cump's Mill. With a column on this road and one on the Emmitsburg Road, General A would not only save time in getting away from his present position, but would approach the left of the 2d Division with his own division partly deployed.

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Not much information is given of the 2d Division; only that it has succeeded in blocking the exits of the Waynesboro pass by holding the ridge through Liberty Mills and McKee Knob, and by covering the roads near Jacks Mountain by howitzer fire. Its left is threatened with envelopment. In attempting this envelopment the Reds doubtless hope to force this division to the north and thus place themselves between it and its base.

One thing is manifest in this situation, and that is that even if the Reds should fail to turn the left of the 2d Division, its right cannot remain where it is after the Blue army has retired. If it did its line would be perpendicular to the general Blue line, with its right "in the air" exposed to any attack of the Reds. It is therefore certain that even if the 2d Division can hold on until the Blue army is in its new position, it will then immediately withdraw its right. Indeed this might be forced upon it before the Blues are in position.

Hence if the 1st Division marches in two columns, one of which is east of the Emmitsburg Road, it will be in a much better position to support the left of the 2d Division as well as to assist the right should that flank be forced back.

The composition and strength of General A's two columns depend upon various conditions. If the two roads were of equal length and in good condition, the right (western) column might be made the smaller, somewhat in the nature of a covering detachment for the larger one. But the eastern route is the longer and the road is not so good. By putting the larger column on the Emmitsburg Road, its marching difficulties would be reduced. The smaller column on the eastern road could make slightly better time and overcome the handicap of greater distance.

The heavy artillery regiment should march with the left column because of the longer range of its guns, the greater difficulty in getting them into position and the fact that it does not usually take part in any preliminary engagements.

The engineer regiment, not being a combatant force, would also be marched with this left column.

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Is there any other Red force that may be dangerous to the division? A regiment of Red cavalry has been observed near Cashtown. In the well prepared attack upon the Blue line, how will this cavalry force probably be used? It it not a large force and would hardly be used directly in the attack. It is much more likely to be found covering the Red right and reconnoitering the Blue left. To throw it into the fight would be to use it improperly, keep it from its legitimate work and waste it in an action in which it would have comparatively little weight. Hence General A may look for this cavalry to appear on his left fairly early in the action.

As soon as the Reds discover that the Blues have withdrawn their main force, how would the cavalry be used? The Reds would have lost contact with the Blues, that is, with the main Blue force, and their first concern would be to regain that contact. This would properly be done by throwing in the cavalry. In such a maneuver as this, the duty of the cavalry would be to gain contact with and then to delay the retiring Blues. Hence there is little doubt that the 1st Division will soon find itself opposed by this regiment of cavalry.

On the subject of rear guards the following is found in the *Field Service Regulations*:

> "The rear guard is charged with the important duty of covering the retreat.
>
> "The strength of the rear guard depends upon the nature of the country and the strength and character of the pursuing force. It cannot, like the advance guard, count on the support of the main body.
>
> "Machine guns are especially useful in the passage of defiles and in covering the crossings of rivers.
>
> "The proximity and conduct of the enemy control, to a large extent, the formation of a rear guard. When it is not necessary to withdraw in deployed lines, the greater part of the rear guard marches on the road in a column of route, taking up a formation resembling that of an advance guard faced to the rear. The distribution of the troops is therefore similar to that of an advance guard, namely:
>
> "Reserve,
> "Support,
> "Rear guard cavalry."

Briefly stated, then, the duties of a rear guard are to cover the retreat. About the only limitation put upon a rear guard commander is that he must, in his work of protecting the main body, insure his own safety and not allow himself

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to become so heavily engaged that he cannot withdraw. He cannot count on any assistance from the main body.

In the situation under discussion the country to be traversed by the division is open and gently rolling and does not offer many good positions from which to delay the Reds.

The support, as in an advance guard, is divided into two parts. The part nearest the enemy is called the rear party and marches with a rear point. Mounted engineers usually accompany the support and may be attached to the rear party. Where the cavalry is of sufficient strength and has horse artillery attached, the entire rear guard excepting the reserve may be composed of that arm. The reserve is composed mainly of artillery and infantry.

Distances of the rear guard from the main body and between the fractions of the rear guard are about the same as in the case of advance guards. If marching at night, the rear guard draws closer to the main body. (*Field Service Regulations*, pars. 57-58.)

On the subject of rear guards the *Infantry Drill Regulations*, pars. 862-3-4, give the following:

> "A rear guard is a detachment detailed to protect the main body from attack in rear.
>
> "In a retreat, it checks the pursuit and enables the main body to increase the distance between it and the enemy and to re-form if disorganized.
>
> "The general formation is that of an advance guard reversed.
>
> "Machine guns, infantry batteries and single guns form a very important part of the rear guard."

Drill and Service Regulations for Field Artillery state the following upon the subject of rear guard:

> "A fighting rear guard protecting the retreat of the main body should have field artillery. A rear guard covering the retreat of a defeated force should have assigned to it practically all of the guns of the command or they should be so marched that they would be available for its prompt reinforcement, as they are a powerful auxiliary in forcing a deployment or otherwise delaying pursuing troops.
>
> "In a retreat, any field artillery not assigned to the rear guard should generally march near the tail of the main body, while that assigned to the rear guard is placed in column according to the requirement of the special situation."

In the present situation what can General A expect from the Reds, assuming that they will pursue the division? Once the Reds discover that the division is making for Emmitsburg it is only reasonable to assume that they will

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do all they can to prevent its joining with the 2d Division in blocking the movement of the Red force from Waynesboro.

Should General A get his division on the march before the Red infantry can reach it, what can the Reds do? The Blue infantry can march as fast as the Red infantry. In a pursuit the main object of the pursuing force is to delay the retreating force long enough for its infantry to attack. For this purpose the cavalry is especially valuable, with its superior mobility, which permits it to attack the retreating force wherever it desires. To attack the retreating force in rear is of little value, as this body would leave sufficient troops to hold off the attackers while the main body kept up its march. Hence the most natural place for the cavalry to strike at under these circumstances is the head of the retreating force or, at least, well towards the head. The head of the column finding itself opposed by a strong cavalry force, must deploy sufficient troops to drive the cavalry away. The cavalry having accomplished this, withdraws to another position requiring another deployment, and so on. The result is that the main body is constantly delayed and the enemy infantry enabled to catch up. Should the Reds use their cavalry in any other manner they would fail to get the best out of it and would make the situation for General A just that much more simple. For example, if the Red cavalry should be used against the rear guard, it would accomplish nothing more than to inflict some losses on that body while the main Blue force continued on its march.

General A has at his disposal one squadron of cavalry. How shall he use it? The answer is, of course, in such a manner as to get the best out of it. He must have the road to Emmitsburg reconnoitered, as well as the country to the west and northwest. This is primarily the work of the air force, which must, however, be supplemented by that of the cavalry.

A small force would seem sufficient for the reconnaissance towards Emmitsburg, as the distance is not great and the march is towards a friendly body of troops. Assuming that a platoon is sufficient, he has then practically four troops left for the work on his flank and rear.

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The question now arises, shall this cavalry be used as independent cavalry or with the rear guard? If used independently the rear guard commander, who has a very important mission, is practically without any suitable force for reconnaissance. On the other hand, if attached to the rear guard, the distant reconnaissance might be neglected, though its performance can be assured by the proper orders to the rear guard commander. However, one of the principal points concerning the use of the cavalry in such a situation is that the rear guard will not take the road for some four hours after the head of the division has started. If used independently, the cavalry could not be held in position to cover the rear guard until so late an hour. It would have to be started out at daylight, and in so doing would practically uncover the rear guard and that part of the division that had not yet started. If assigned to the rear guard and the rear guard commander given the necessary orders, such a condition could be avoided. This would mean a considerable dispersion of the cavalry in order to cover the rear guard and also perform reconnaissance, but, with everything considered, it seems to be the best way to use the squadron.

The strength of the rear guard depends upon the nature of the country and the strength and character of the pursuing force.

General A does not know what size force will pursue him if he is pursued at all. It is only reasonable to assume that the Reds will send a force at least equal to his own. If they do not pursue him or if they send only a small force, his problem is just that much more simple. He feels reasonably sure that the Red cavalry regiment will be sent after him. About the best he can hope for is to find himself pursued, for a while at least, by not more than a division and a cavalry regiment. However, the distance to which the Reds can safely pursue is quite definitely limited. If they attempt to follow him too far, they will find themselves threatened in the flank by the Blue army, especially by the 10th Corps, which is to occupy the sector between Two Taverns and Harney.

If the expected Red attack takes place tomorrow morning, how will it probably be made? If the Blue line rested

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on two impassable obstacles, a frontal attack, probably with great depth might be expected. But the left of the Blue position is "in the air" and the most probable plan of attack will include a holding attack along the front, while a strong force attempts to turn the Blue left. At least that would be the most disadvantageous for the Blues. The reported concentration of Red divisions near Arendtsville bears out this assumption.

Assuming that the Reds will attack in this manner, an enveloping force consisting of several divisions might attempt to strike the Blue left from the west or the northwest. These divisions would doubtless be moved into position for launching the attack, during the night, and would occupy considerable front as well as depth. The ridge running southwest from Texas, while it is very close to the Blue left, offers a good place for such a deployment at night. If one element of this enveloping force attacked straight against the Blue left at Goldenville, the other elements would doubtless be deployed on the right of this force to strike in rear of the Blue line. Assuming that this is what will probably occur, these divisions cannot continue east of Goldenville after finding that the Blue army has withdrawn, but must turn south; otherwise they would interfere with their own army. If they continued south they could not all march on the same road; so General A can count on a Red column moving through Gettysburg and others marching parallel to it and farther to the west. The work of the Blue rear guard will therefore be to the rear and the right rear.

The country over which General A is to march offers few positions from which to delay the Reds. For the first few miles the road traverses a flat country with a low ridge on the west, near the stream. This ridge, together with the stream, does offer some protection to any attack from the west, none to one from the north. After passing the Round Tops the road follows on top of a flat, open ridge, with an occasional flat knoll.

The duty of the rear guard is to delay the enemy by causing him to deploy, and not to make a stand unless that becomes absolutely necessary to save the main body. The best weapons for this purpose are those with long range;

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artillery and machine guns. A large infantry force in the rear guard in the present situation would not be used to advantage because of the unfavorable nature of the terrain. Also, General A is concerned in getting as much as possible of his division to Emmitsburg. A brigade in the rear guard is obviously too large, being one-half of the infantry force. A regiment would appear to be about the right size. A smaller force would be too weak to have attached to it all of the various auxiliary arms. Again, a rear guard is the place for a large part of the artillery. With too small an infantry force the artillery is without sufficient protection.

A regiment of infantry has with it its own machine gun company and its one-pounder platoon. If more machine guns are desired the brigade battalion is available.

In determining the amount of artillery to put in the rear guard, several things must be considered. First, the artillery, by virtue of its long range, is the best arm for causing the pursuing force to deploy; hence from this standpoint, the more artillery in the rear guard the better. Second, too large a force of artillery in proportion to the infantry component causes the rear guard to become top heavy with artillery and does not afford this arm sufficient protection. Third, the artillery occupies very great road spaces and may separate the rear guard from the main body by so great a distance that it may be cut off and fail in its mission. Also, in this particular situation, General A must consider that his artillery must be available for work when he reaches the 2d Division.

If the 1st Division should be pursued by only one column of Reds, a battalion of artillery would seem to be sufficient. It is certainly powerful enough to cause this one column to deploy long before it could reach the rear guard infantry. But it looks as if the division might find itself pursued by more than one Red column, possibly one immediately in rear and one or more on its right rear. In this case a single battalion would not be enough to cause all of the columns to deploy. Stopping one column while the others continued the pursuit would soon result in the rear guard becoming heavily involved.

The territory on either side of the Emmitsburg Road is restricted by the hilly country to the east and Willoughby

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Run to the west. There is also but one road available. More than one regiment of artillery would be handicapped by lack of room and roads. A 75-mm. regiment would be used because of its greater mobility and its ability to carry with it more ammunition. As the rear guard may have to fight for a long time, the combat trains of the artillery should accompany it.

Engineer troops are valuable in rear guards to assist in delaying the enemy by obstructing roads, destroying bridges, etc. In this case there is little that can be done in this respect. There are no favorable places for obstructing the roads and there are only two small bridges. However, a few engineers might prove useful and should accompany the rear guard.

Having a rear guard consisting of a regiment of infantry, a regiment of artillery, a squadron of cavalry, and a brigade machine gun battalion, with prospects of considerable fighting during the day, the question arises whether or not the infantry brigade commander should command the rear guard. The infantry regimental commander will have his hands full with his regiment and the machine gun company; besides he is not equipped with sufficient staff for handling as large a force as he would have. On the other hand, the brigade commander has a larger staff and is therefore better prepared to take over the command of this force. Two objections to placing the brigade commander in command of the rear guard immediately come up. First, it leaves a single regiment of infantry for the division commander to handle, and second, it prevents the use of the brigade commander in any possible action in the vicinity of Emmitsburg. The first objection is not a serious one as this regiment could easily be attached to the other brigade or possibly be used as reserve in case of action. The second is more serious and must be considered with reference to the necessity for having a general officer in command of the rear guard.

The rear guard is an important detachment in this case and upon its performance of its duties may depend the march of the division. The division has at least ten miles to march before it reaches Emmitsburg, and it is unusual for a force of the size of a division to make a march of this

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length and enter into a serious engagement on the same day. In case of extreme necessity parts of the division might be used today, but hardly the whole of it. It would therefore appear that the services of the brigade commander will not be needed with the division today. If such is the case, his place is with the rear guard.

A detachment of the sanitary train should accompany the rear guard. The same considerations govern in selecting the ambulance company that is to be assigned to the rear guard as governed in the case of the advance guard. The motorized companies cannot operate easily with foot troops on the march.

No rules can be laid down for the distance at which the rear guard should follow the main body. In general they are a little greater than those used by an advance guard of the same size. If too great, the rear guard is exposed to the danger of being cut off and thus failing in its mission. If too small there is danger that, in case of a vigorous attack the rear guard may be driven back on the main body and involve it in the disorder. The latter is especially to be avoided in case of the retreat of a defeated force. Seeing the rear guard driven back or even retiring hastily may have a very serious effect upon the morale of the main body, already lowered by its defeat.

General A has at his disposal a highly mobile force of great fire power in his division motorized machine gun battalion. It would appear that this might be used with great advantage in protecting his rear and flanks. Such an organization cannot, of course, operate entirely by itself, but must have some protection. If the division battalion is marched immediately in rear of the column, it can easily be sent to the rear guard in case of necessity. Attaching it to the rear guard takes it temporarily out of the control of the division commander.

If the cavalry squadron is operating independently, this machine gun battalion might be attached to it, if conditions warranted such a thing. Such a combination would be a very valuable one for delaying actions.

The three motorized ambulance companies remain to be disposed of. Difficulty arises in marching these units with foot troops. It can be done by having the motorized

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units at the extreme rear, which gives them some opportunity to move by small bounds at a proper rate of speed. However, if General A did not wish to have these units accompany the division he could send them by another route, ahead of the field trains for instance. If he decides to have them with the division, one should march in rear of the right column and two in rear of the left.

The division trains are still operating from Taneytown, but the continuance of the division railhead and refilling point at that place becomes impossible with the arrival of the 10th Corps in that area. The army commander has designated Keymar as the division refilling point.

General A finds himself encumbered with his field trains in his movement towards Emmitsburg. What shall be done with them? They must be moved out of the way, so they will not interfere with the movements and maneuvers of the troops. They cannot be marched in rear of the division and they cannot be sent ahead to Emmitsburg. While the 2d Division is at present successful in holding the mouth of the pass, there is no absolute assurance that it will continue to be so. In case the field trains were sent ahead of the division and the 2d Division were driven back, they would become involved in the retirement of the 2d Division as well as in the forward movement of the 1st Division. The united field trains of a division cover a road space of about three and one-half miles.

The movement of the 10th Corps into the area north of Taneytown prevents sending the trains back to that place, or even using the Taneytown Road that far.

If the situation at Emmitsburg should not prove to be very serious, the field trains of the division, or at least a part of them might well be sent to the troops. The comfort of the men should be kept in mind at all times and whenever it is practicable to do so the field trains should join their organizations.

In the present case it is necessary to get these trains out of any possible theatre of maneuver of the division, while not sending them so far away that they cannot be sent up if that is desired. A position in the vicinity of Bridgeport, east of the Monocacy River, would keep them out of the way,

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in a safe place and in one which would not interfere with the 10th Corps. They should be marched west of the Monocacy until the vicinity of Bridgeport is reached.

As the division is more or less uncovered during the night by the withdrawal of the Blue army, there is the chance that the Reds may learn of this and attack during the night, or at least advance their lines as far as possible. Much as the field trains may be desired, they constitute a menace to the division and should be started on their way without great delay.

Third Requirement:

Detachment, 1st Div,
GETTYSBURG, PA.,
20 Nov 19, 11:50 PM.

FIELD ORDERS }
No — }
Maps: Gettysburg, 1:21120.

TROOPS

(a) Reserve, in order of march
1st Amb Co
Arty C Tn
2d LA
Co B Engrs
2d Bn 3d Inf
2d MG Bn
3d Inf (less 2 bns and MG Co)
BHQ

(b) Support
Maj T
1st Sq 1st Cav (less det)
1st Bn 3d Inf
3d MG Co

1. The hostile attacks have been stopped. A Red cavalry regiment is reported near CASHTOWN. Our army retires tonight to a new position in rear. The 10th Corps will occupy the line from TWO TAVERNS to HARNEY. The 1st Div marches tomorrow on EMMITSBURG.
2. This detachment constitutes the rear guard of the division.
3. (a) The reserve will follow the right column, which clears the crossing of the railroad spur and the EMMITSBURG ROAD near the N. CODORI house at about 6:30 AM, at one mile.
   (b) The support will follow the reserve at 800 yards. Reconnaissance to FAIRFIELD, CASHTOWN, MUMMASBURG and GOLDENVILLE. An officer's patrol will be on ROUND TOP at daylight to observe the Red movements. It will rejoin as the support passes.
   (x) After 4:00 AM all units will hold themselves in readiness to march upon ten minutes' warning.
4. F Tns will march with those of the division and will be reported to the officer in command of the division F Tns at such hour and place as he may designate.
5. Messages until 7:00 AM to these headquarters, after that hour to the tail of the reserve. All radio sets will operate during each hourly halt and report to these headquarters.

B,
Brig Gen.

Copies to:
Brig Staff
CO 3d Inf
2d LA
1st Sq 1st Cav
2d MG Bn
1st Amb Co
Co B Engrs
CG 1st Div

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Fourth Requirement:

The problem before General B, the rear guard commander, will now be considered. He has under him the following troops:

3d Infantry,
2d Light Artillery,
1st Squadron, 1st Cavalry,
Company B, Engineers,
4th Ambulance Company (horse-drawn),
2d Machine Gun Battalion (horse-drawn).

In considering this situation it is well to differentiate between the duties of a body of troops acting as a rear guard and a body covering the withdrawal from action of another force.

When the main body is in contact or has become engaged with the enemy and is ordered to withdraw from the action, the usual procedure is to detail a suitable force to cover the withdrawal. This force usually has to take up a position and engage the enemy until the main body has withdrawn and then execute its own withdrawal. Often this same detachment forms the rear guard when the main body has succeeded in withdrawing, but though these two functions will probably shade into each other, the detachment does not properly become a rear guard until the main body is free and on the road. In other words a rear guard, properly speaking, is a detachment covering the rear of a body of troops on the march.

In the situation under consideration, unless the unexpected happens, the division will be on the road before the Reds can reach it in force, so General B's problem becomes purely that of a rear guard.

Par. 863, *Infantry Drill Regulations,* states the following relative to the duties of a rear guard:

> "The commander takes advantage of every favorable opportunity to delay the pursuers by obstructing the road or taking up especially favorable positions from which to force the enemy to deploy. In the latter case, care must be taken not to become so closely engaged as to render withdrawal unnecessarily difficult. The position taken is selected with reference to ease of withdrawal and ability to bring the enemy under fire at long ranges."

The conduct of a rear guard varies somewhat from that of an advance guard. The special duty of the rear guard is to cover the main body, not only on the road or roads by

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which it is retiring, but also on any parallel roads, and to prevent the enemy from engaging the rear guard with a part of his force while the remainder gets past on another road. This means that the rear guard reconnaissance must gain and maintain contact not only with the enemy's advance troops, but also with his main body. Once this contact with his main body is established, every effort should be

In general, if the enemy is aggressive, the usual procedure of a rear guard is to select and occupy a series of positions from which to force the enemy to deploy and thus gain time for the main body.

As the rear guard will not start its march until approximately one-half hour after daylight and as it now occupies a position between the main body and the Reds, General B even without specific orders to that effect, would take the necessary steps to cover the movement of the division. If deemed necessary he might place his force in a favorable position and be ready to put up a determined defence in case of an unexpected Red advance.

In general, the formation of a rear guard is about that of an advance guard reversed. The distances are about the same, though they may be a little greater.

Formation of the Rear Guard

Infantry

Machine Guns

General B has at his disposal the machine gun company of the 3d Infantry and the brigade machine gun battalion. Since the machine gun is particularly valuable in a delaying action all of them should march in such a position within made to maintain it for the reason stated above.

The regiment consists of three battalions, and the normal disposition is two in the reserve and one in the support. About the only variation from this is to make the support smaller, obviously not correct in this case. One battalion in the reserve and two in the support would make the rear guard overbalanced in rear. A distance of 600 or 800 yards between the reserve and the support would appear to be about right.

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the column as to permit their early entry into action. However, it must be borne in mind that while on the road the machine gun organizations are quite vulnerable and must be protected by sufficient infantry. Under normal conditions a machine gun company can handle all the machine gun work called for by a battalion of infantry, so that it would seem that the regimental machine gun company would be sufficient for the support. It should march at the head of that body. This leaves the brigade machine gun battalion to be placed in the column. It occupies just one mile of road space with its guns and combat train. To march it at the head of the reserve of the rear guard might delay unnecessarily its moving into action, as it would have to pass two battalions of infantry (occupying about 1300 yards on the road) probably also moving into action. If placed in rear of the reserve it does not have sufficient protection. Placing it in this position also puts five machine gun companies (four in the battalion and one regimental) all marching together. The best position seems to be between the two infantry battalions of the reserve.

Artillery

The artillery regiment is a very large unit occupying almost 3000 yards of road space. Its early entry into action must also be foreseen, but with its long range it does not have to be placed close to the actual combat. To place it between the reserve and the support would result in insufficient protection for the artillery and the separating of the units of the rear guard by excessive distances. It should therefore be placed ahead of the reserve. Its own combat train, not being necessary at the beginning of any possible engagement, should precede the firing batteries.

Cavalry

General B has a squadron of cavalry at his disposal. If a rear guard has plenty of cavalry, the pursuing force being mostly infantry and the terrain offering many good delaying positions, the support may consist entirely of cavalry and machine guns, the artillery and infantry being in the reserve. In the present situation such a disposition

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would be advantageous if it were not for the necessity for reconnaissance to the west and northwest and the locating of the Red cavalry regiment. To make the support of cavalry would result in handicapping that arm in its legitimate work; so it would seem much better to assign to the support commander both infantry and cavalry and give him the necessary orders to insure the proper reconnaissance.

While the rear guard may not have to fight to protect the division on its march, it might be well to see how such a force would be handled in this contingency.

Its duties are specific—to protect the march of the main body.

As the rear guard commander cannot look for help from the retiring main body, he should be given great freedom of action. It is seldom advisable to attempt to specify how he shall carry out his duties, as he is on the ground and should be the best judge of what steps are necessary to meet any emergency.

When the enemy gets so close behind that he must be stopped, the usual procedure is to occupy a series of positions from which to delay him by causing him to deploy. One part of the rear guard is so disposed that it can cover the retirement of the more advanced part. Hence, it is seen that an important duty of a rear guard commander is to select, in advance, suitable positions from which to delay the enemy. While the conditions that develop may not warrant the occupation of all of the positions so selected, the commander should be ready with a fairly well thought out plan which would include delaying positions. Such positions are similar to those for defensive purposes, that is, they should fulfill as many as possible of the requirements of a defensive position. However, as they are not to be held until the enemy closes, it is permissible to occupy them with fewer men, or with a more extended front than would be the case in a defensive action. The thin line thus established is for the double purpose of deceiving the enemy as to the true strength and causing him to go much farther in turning the position.

In case the march of the main body is unexpectedly delayed, the rear guard may be called upon to fight to a

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finish, and the dispositions should be made accordingly. In such a case, however, the rear guard might be reinforced from the main body.

In planning his work the commander of a rear guard should constantly keep in mind two principles: to make his plans of action as simple as possible and to keep his command well in hand. While these principles apply in all tactical situations they are especially important in the action of rear guards. An advance guard commander, knowing that he will be reinforced by the main body, may take some chances that would be suicidal for a rear guard, which can not count upon any help. The rear guard is sometimes called upon to withdraw from the action, a most difficult undertaking, and if the parts are unduly dispersed it becomes still more difficult. If the plan of action is complicated it is very apt to break down altogether, on account of the unusual difficulties. Unless the features of the terrain dictate otherwise, troops withdrawing from action can only be moved straight to the rear. To move to a flank or execute any complicated movement is practically impossible.

(B-4) SECURITY ON THE MARCH—MAP PROBLEM

CAPTAIN FAY W. BRABSON,
Infantry

Maps: Pennsylvania and Maryland Geological Survey Map, 1:62500.
Gettysburg-Antietam Map, 1:21120.

General Situation:

The meridian 77° 15′ west longitude forms the boundary between West (Blue) and East (Red). War has recently been declared. Reds are known to be concentrating at Westminster.

A Blue army is concentrating in the Waynesboro—Greencastle area.

PART I

Special Situation:

The 1st Division reinforced by the 1st Observation Squadron and the 1st Squadron, 1st Cavalry (with machine gun troop), is marching east from Waynesboro. On January 6, 1920, it is bivouacked as follows:

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1st Squadron, 1st Cavalry, and 1st Machine Gun Battalion, just north of Zora.
1st Brigade, along creek west of Cove Hollow.
2d Brigade and 1st Engineers, along both sides of creek near Fountain Dale.
1st Field Artillery Brigade and 1st Field Signal Battalion, along Miney Branch just west of 2d Brigade camp.
1st Observation Squadron at Rouzerville, west of Monterey.
Division trains, at Monterey and Blue Ridge Summit.

At 6:00 PM January 6, 1920, General A at Fountain Dale received a message from the army commander at Greencastle as follows:

1st Army,
GREENCASTLE,
6 Jan 20, 5:30 PM.

CG 1st Div,
By telegraph.

Hostile cavalry patrols reported this afternoon in Blue territory just west of GETTYSBURG. Move your division tomorrow to secure a bridgehead east of the MONOCACY RIVER to cover the crossing of the corps at BRIDGEPORT.

The 2d Blue Div moves tomorrow by truck to ZORA. The advance elements will begin to arrive there at 6:00 PM.

X,
Brig Gen,
C of S.

Required:

(1) The formal orders issued by General A.

Time allowed—Two hours.

PART II

Special Situation (Blue):

Assume that the 1st Blue Division marched the morning of January 7, 1920, in compliance with the following order:

1st Div,
FOUNTAIN DALE,
6 Jan 20, 7:30 PM.

FIELD ORDERS
No 7

Maps: 1:62500 and 1:21120.

TROOPS

(a) Air Service
Maj N
1st Obsn Sq

(b) Independent Cavalry
Maj X
1st Sq 1st Cav (less dets)
MG Tr 1st Cav

1. Red cavalry patrols were reported this afternoon on Blue territory just west of GETTYSBURG. The 2d Blue Div moves tomorrow by truck to ZORA; the advanced elements will begin to arrive there at 6:00 PM.
2. The 1st Div will march on BRIDGEPORT tomorrow for the purpose of establishing a bridgehead east of the MONOCACY RIVER to cover the crossing of the corps.

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(c) Advance Guard
Brig Gen C
1st BHQ
Tr A 1st Cav
1st Inf
1st Bn 1st LA
Co A 1st Engrs
4th Amb Co

(d) Main Body in order of march
2d Inf
2d MG Bn
1st FA Brig (less 1st Bn 1st LA, 3d HvA and C Tns)
2d Brig
1st Engrs (less Co A)
C Tns FA Brig (less 1st Bn 1st LA and 3d HvA)
3d Hv A
Amb Sec Sn Tn (motor)
1st MG Bn

(e) Signal Troops
Maj E
1st F Sig Bn (less dets)

3. (a) The 1st Obsn Sq will reconnoiter the EMMITSBURG—TANEYTOWN—WESTMINSTER road, and the country between the MONOCACY RIVER and SOUTH MOUNTAIN as far north as MUMMASBURG and as far south as ROCKY RIDGE, commencing at daylight tomorrow.

No change in camp for this squadron until further orders.

(b) The independent cavalry will march at 7:12 AM, via EMMITSBURG—BRIDGEPORT road and will delay any hostile advance west of TANEYTOWN. Small reconnoitering patrols will be sent towards LITTLESTOWN on the north and towards UNION BRIDGE on the south.

(c) The advance guard will clear the road junction at COVE HOLLOW at 8:00 AM and will march via the EMMITSBURG — BRIDGEPORT road. The cavalry will move early on GREENMOUNT—BARLOW—HARNEY to cover the left flank of the division. Special reconnaissance will be made of the FAIRFIELD—GETTYSBURG and the GREENMOUNT — GETTYSBURG roads. Close-in reconnaissance will be made to include the line of hills one and one-half miles north of EMMITSBURG—road junction 444—HARNEY.

(d) The main body will follow the advance guard at 1000 yards.

4. The field trains and the divisional trains will assemble off the roads in their respective camps to await orders from the CO Tns. The CO Tns will move the combined divisional trains and field trains (less detachments) so as to clear ZORA or other eastern exits of SOUTH MOUNTAIN by 6:00 PM tomorrow and will hold these trains grouped in the area ZORA—MOUNT ST. MARYS—EMMITSBURG for further orders. See administrative orders.

5. (a) Plan of signal communications, no change.
(b) Division axis of signal communications: commercial line LIBERTY MILLS—EMMITSBURG.
(c) Forward communication centers at EMMITSBURG and BRIDGEPORT.

Division headquarters will close at FOUNTAIN DALE at 9:00 AM, tomorrow and open at EMMITSBURG same date and hour.

A,
Maj Gen.

Distribution:

Div Staff
1st Brig
2d Brig
1st FA Brig
1st Engrs
1st MG Bn
1st Obsn Sq
1st F Sig Bn
CO Tns
CO Sn Tn
CO Cav
CG 1st Corps
CG 1st Army.

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At 8:40 AM, General A received at Fountain Dale a relayed message from the landing field at Rouzerville stating that, at 8:00 AM, the head of a long column of infantry marching west was between Fountain Valley and Frizzelburg, and that the roads east of Westminster within a radius of three miles were full of troops and trains. General A motored forward and at 9:00 AM overtook the commander of the advance guard riding at the head of the reserve, which was approaching Emmitsburg. The advance guard commander turned over to General A the following message received by motorcycle:

Tr A, 1st Cav,
GREENMOUNT,
7 Jan 20, 8:30 AM.

To Adv Gd Comdr,
By courier.

Hostile force estimated at one regiment infantry and two platoons cavalry moving south on GETTYSBURG ROAD. Head of column nearing road junction 580, east of PITZER SCHOOL fired upon by our patrols. Have destroyed bridges over MARSH CREEK from GREENMOUNT to a point as far north as the bridge due west of PITZER SCHOOL. Will defend hill 586 one mile north of GREENMOUNT.

If forced to retire will destroy bridge south of GREENMOUNT and delay Reds at MARSH CREEK.

M,
Capt.

At the same time General A received the following message through the forward communication center at Emmitsburg:

Rouzerville,
7 Jan 20, 8:55 AM.

G2, 1st Div
By telephone.

At 8:25 AM GETTYSBURG—EMMITSBURG road filled with marching infantry. Leading elements apparently deploying along PITZER SCHOOL —580 road. Many one-horse carts. No other troops seen in that area.

H,
Capt AS.

Required:

(2) Orders as actually issued by General A.

Time allowed—Two hours.

An Approved Solution

First Requirement:

The order given in the special situation, Part II, is the approved solution for Part I and will not be set down a second time.

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Second Requirement:

General A directed the advance guard commander to expedite his march in every way. He motored back to the head of the main body, which he met just east of Zora, outlined the new situation to Colonel F, commanding the 2d Infantry, and directed that the head of the column move to the northeast.

The verbal orders were reduced to writing and a copy sent to Colonel F:

1st Div,
ZORA,
7 Jan 20, 9:25 AM.

FIELD ORDERS }
No 8 }

Maps: 1:62500 and 1:21120.

1. Our advance guard cavalry is delaying a Red infantry regiment and a small detachment of cavalry on the high ground north of GREENMOUNT. The bridges along MARSH CREEK from GREENMOUNT to a point as far north as J. SACKS have been destroyed by our cavalry.
2. The following troops come under the command of Col F: the 2d Inf, 2d MG Bn, 1st LA (less 1st Bn), one Amb Co, one Rad Sec, and 1st MG Bn. This command will move at once via the roads running northeast from near ZORA to the vicinity of hill 568—FAIRPLAY and will hold the enemy north of MARSH CREEK.
3. The advance cavalry now operating under Capt M will come under the command of Col F.
4. C Tn 1st LA (less C Tn 1st Bn) will park at ZORA upon arrival there and await instructions from Col F.
5. Messages to EMMITSBURG.

A,
Maj Gen.

Distribution:

Div Staff
CG 2d Div
CG 1st Blue Army
CG 1st Corps
CG 1st Brig
CG 1st FA Brig
CO 2d Inf
CO Tns
CO Sn Tn
CO 1st Bn 1st LA
CO 2d MG Bn
CO 1st F Sig Bn
CO 1st MG Bn
CO Adv Gd
CO Cav

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(C-1) AN OUTPOST FOR THE NIGHT

MAJOR DUNCAN K. MAJOR, JR.,
Infantry

Maps: Gettysburg-Antietam Map, 1:21120.
Bonneauville Sheet.

Situation:

The 1st Division (Blue) in hostile territory is on the march toward Gettysburg.

At 1:00 PM, September 1, 1919, when the reserve of its advance guard is about 500 yards southeast of Sells Station, the advance guard commander (Colonel B) who is riding at the head of the support receives an order from the division commander informing him that the division will halt for the night, the main body camping in the vicinity of Sells Station and along the road to the east. Colonel B is directed to establish the outpost along the line Felty S. H.—Pleasant Hill S. H., which will be defended in case of attack.

The baggage section and filled ration section of the field trains will join their organizations.

The advance guard consists of the following troops:

1st Infantry.
1st Squadron, 6th Cavalry.
1st Battalion, 3d Light Artillery.
Company A, 1st Engineers.
4th Ambulance Company.

The information of the enemy up to 1:00 PM, is as follows:

The 1st Observation Squadron reported this morning that Gettysburg appeared to be occupied by a great many troops. A long column of all arms was seen at about 11:00 AM, marching south on the Carlisle Road, head of column at that hour at Texas. This information was later verified by the cavalry, which stated that the 10th Division (Red) was concentrating at Gettysburg where the last element would arrive this afternoon. The cavalry also reported that hostile cavalry encountered this morning at Two Taverns and Bonneauville had been driven back on Gettysburg.

Required:

1. Advance guard order as actually issued by Colonel B.
2. Outpost order as actually issued by Major C.

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3. Sketch showing location of supports, pickets, sentry squads, cossack posts and sentinel posts. (See Map in Map Pocket—"An Outpost for the Night.")

4. Table showing strength of all elements of outpost that are shown on the sketch.

First Requirement:

Colonel B's advance guard order:

Adv Gd 1st Div,
Crossroads 1000 yards southeast of BASHORE MILL,
1 Sept 19, 1:15 PM.

FIELD ORDERS }
No — }

Map: 1:21120, Bonneauville Sheet.

1. GETTYSBURG is occupied by a hostile division. Hostile cavalry was encountered by our cavalry at TWO TAVERNS and BONNEAUVILLE this morning and driven back on GETTYSBURG.
   The main body of the division halts for the night and camps in the vicinity of SELLS STA. and along the road to the east.
   1st Sq 6th Cav will remain out to front until 7:00 PM, when it will join reserve of advance guard.
2. The Advance Guard will halt for the night and establish the outpost.
3. (a) Maj C, with 1st Bn 1st Inf, MG Co 1st Inf, and 1 plat 1st Sq 6th Cav will establish the outpost along the line FELTY S. H. —PLEASANT HILL S. H., which will be defended in case of attack.
   The HANOVER ROAD and BALTIMORE TURNPIKE will be observed.
   (b) The advance guard [less troops in par. 3 (a)], will camp as follows:
      1st Inf (less 1st Bn and MG Co) along creek south of road junction 535.
      1st Bn 3d LA along creek south of farm road 800 yards south of road junction 535.
      1st Sq 6th Cav (less 1 plat) along creek north 566—535 road.
      4th Amb Co at farm house 800 yards southeast of road junction 535.
      Co A, 1st Engrs with 4th Amb Co.
      In case of attack organizations will form up in their camps and await orders.
4. Rolling kitchens will join their organizations.
   The baggage section and filled ration section of F Tns will join their organizations. Upon completion of issue the empty ration wagons will join train park at farm house about 800 yards southeast of road junction 535.
5. Command Post: Advance guard commander, BASHORE MILL.

By order of Colonel B,

C. D.,
Operations Officer.

Verbally to Bn Comdrs Inf and Arty CO's, Hq and MG Cos 1st Inf, Co A, 1st Engrs, 1st Amb Co and Staff.
By courier to CO 1st Sq 6th Cav and CG 1st Div.

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Second Requirement:

Major C's outpost order:

Outpost, 1st Div,
Crossroads 1000 yards southeast of BASHORE MILL,
1 Sept 19, 1:20 PM.

FIELD ORDERS
No —

Map: 1:21120, Bonneauville Sheet.

Troops

(a) Outpost Cavalry:
2d Lt G
1 plat 6th Cav

(b) Supports:
No 1, Capt B
Co B, 1st Inf
No 2, Capt C
Co C, 1st Inf
No 3, Capt D
Co D, 1st Inf

(c) Reserve:
Capt A
Co A, 1st Inf
MG Co 1st Inf

1. GETTYSBURG is occupied by a hostile division. Our cavalry drove back on GETTYSBURG this morning hostile cavalry encountered at TWO TAVERNS and BONNEAUVILLE.

   Our division halts for the night in the vicinity of SELLS STA. and to the east.

   Our advance guard (less troops on outpost) camps in vicinity of BASHORE MILL.

   1st Sq 6th Cav remains to front until 7:00 PM when it retires and camps near BASHORE MILL

2. 1st Bn, and MG Co 1st Inf and 1 plat 6th Cav, will establish outpost from FELTY S. H. to PLEASANT HILL S. H. covering division. In case of attack this line will be held.
3. (a) From vicinity of ST. LUKES CHURCH and crossroads 621 the cavalry will observe the HANOVER ROAD and BALTIMORE TURNPIKE. It will be in position by 7:00 PM.

   (b) Support No 1, posted at road junction 577 northeast of FELTY S. H., will cover the sector from road junction northeast of A. RIFLE to fence 400 yards southwest of 577.

   Support No 2, posted at crossroads 633, will cover the sector from the left of Support No 1 to fence 500 yards south of 633.

   Support No 3, posted at PLEASANT HILL S. H., will cover the sector from the left of Support No 2 to hill 621, northeast of TOLLGATE.

   (c) The reserve will camp in the clump of woods 1000 yards west of BASHORE MILL.

   Company A will join the reserve when Support No 2 is in position.

   The CO MG Co 1st Inf will make a reconnaissance with a view to selecting positions for his guns in case of attack.
4. Baggage wagons and rolling kitchens will join their organizations. The latter will be refilled by the filled section, F Tn this evening at their positions.
5. Command Post: FARMHOUSE, 1300 yards west of BASHORE MILL.

C,
Major.

Verbally to Staff, Co CO's and Lieut G Cav. Copy by courier to Adv Gd Comdr.

Discussion

In order fully to understand the position of Colonel B at 1:00 PM, when he receives the order from the division

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commander informing him that the division is going into camp for the night and directing him to establish the outpost, there must first be obtained a mental picture of the location of the various elements of the advance guard at this time.

The whereabouts of the cavalry is not definitely known beyond the fact that it is to the front and covering the Hanover Road and Baltimore Turnpike. It has been able to confirm the information gained by our airplanes, which is unusually definite. As a result of the activity of the cavalry the advance guard has made its march without hindrance from the enemy. The work of the advance guard today has therefore been little more fatiguing than that of the troops in the main body.

The remaining elements of the advance guard are located as follows:

Mounted cavalry point, at 613, 1 mile west of Bashore Mill.

Infantry point (one squad), crossing creek 150 yards east of Bashore Mill.

Advance party (Company A) has just cleared road junction, 200 yards southeast of 535.

Support (1st Battalion (less Company A) and Machine Gun Company, 1st Infantry), head at crossroads 750 yards southeast of 535.

Reserve (in order of march: 2d Battalion, 1st Infantry, 1st Battalion, 3d Light Artillery, 3d Battalion, 1st Infantry, Headquarters Company, 1st Infantry, Company A, 1st Engineers, 4th Ambulance Company), head about 500 yards southeast of Sells Station.

Cavalry patrols assigned to the support are paralleling the route of the advance guard on the roads to the north and south.

One cavalry patrol is at Pleasant Hill S. H.

One cavalry patrol is at 554, 500 yards northwest of Washington Meeting House.

Colonel B at this time is riding at the head of the support with Major C, whose battalion constitutes the support of the advance guard. This is very fortunate and will assist materially in the prompt issuance of the advance guard order for the establishment of the outpost. Colonel B is aware of the importance of placing troops in camp promptly and of having those detailed for outpost duty in position without delay.

The division commander has indicated in his order the general line of the outposts. He might have left the selection

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of this line to Colonel B, who is probably more familiar with the terrain to the immediate front than General A. Colonel B, however, has to determine the strength of the outpost and what troops will be assigned this duty, and select a commander.

In determining the strength, Colonel B is guided by the principle of assigning the minimum of troops consistent with the situation. Not one man more than is necessary to provide reasonable security for the main body should be placed on this fatiguing duty. Troops on this duty at night, owing to loss of sleep, will not be fit for any great exertion the next day.

The location of the enemy is one of the main factors in deciding upon the strength of the outpost. Were the enemy distant several marches, only the simplest measures would be necessary. With the enemy at Gettysburg, distant about one day's march, Colonel B must be a little more cautious, for there still remains daylight and the enemy might march during the afternoon with the intention of attacking at daybreak next day. However, with his cavalry out and his aviators keeping the enemy under close observation, Colonel B should be informed of any such move in time to meet it. When two forces are about one day's march apart there is little or no cause for worry that one or the other will make a night attack. Colonel B cannot recall one instance in military history where night attacks have been successfully made except where the opposing forces have been in close contact and facing each other for at least a day. To carry out a successful attack reconnaissance of the enemy's position is necessary.

From a consideration of the above, as well as from a study of the front to be covered, Colonel B decides to assign one battalion of infantry, a machine gun company and one platoon of cavalry for duty as outpost. He selects Major C's battalion for this duty, together with the machine gun company, 1st Infantry, and one platoon, 6th Cavalry. It will be noticed that Major C's battalion at present forms the support of the advance guard. If this battalion had had a very fatiguing task during the day's march, Colonel B would have selected one of the battalions from the reserve

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of the advance guard to form the outpost. However, not only have the three companies in the support merely had to march along the road as have the reserve battalions, but also Company A, which has formed the advance party has had a comparatively easy time. This company has not encountered the enemy and the cavalry has performed much of the patrolling that Company A would have been obliged to do had the cavalry not been present. There would, however, be no objection to the selection of one of the battalions of the reserve for outpost duty.

From the above it is seen that Colonel B has assigned but a fraction of his advance guard for outpost duty. This is the rule where the force is larger than a brigade. With forces the size of a brigade or smaller the entire advance guard will generally be needed to form the outpost for the night, and will be relieved in the morning by a new advance guard. In the present situation, Colonel B is simply carrying out the principle of cutting the outpost down in strength to the minimum absolutely needed to give reasonable security to the command. There might be occasions when it would be necessary to place Colonel B's entire advance guard on outpost, for instance where the enemy was very near and aggressive. The same would apply in the case of a retreat, after Colonel B's division had been defeated decisively and when a large outpost was necessary to check the victorious enemy during the night in order to give the main body time to get away. The entire rear guard might then be used. These situations are rather exceptional. In a division the advance guard generally remains as such for several days at a time. It is therefore necessary that a part of it have rest each night so that it may be in condition properly to perform its duties the following day.

As regards the cavalry, it has probably been noted that Colonel B has placed only one platoon on duty with the outpost, a very small fraction of the cavalry at his disposal. If the cavalry is to carry out its role of reconnaissance to the front every day from dawn to dark, as it generally must during marches, the horses must have rest at night, for they succumb much more easily under hardships than do men. Therefore, Colonel B has the squadron re-

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main out until 7:00 PM, when it is withdrawn and retires behind the outpost line for the night. It must be ready at break of day to resume its duty at the front; only one platoon is left out to keep up the reconnaissance during the night.

No artillery is assigned to the outpost as it is not deemed necessary in the present situation. It will be rather the exception when artillery forms part of an outpost. The advance guard commander will generally retain it under his command. Camping with the reserve of the advance guard, it will generally be able to find battery positions in the vicinity, from which it can bring fire to bear upon any route of approach of the enemy. Furthermore, in this position it will as a rule be nearer its proper location as regards the line of resistance. Colonel B, however, will direct the artillery commander to make the necessary reconnaissance, so that in case of attack the batteries may take up the positions promptly and without confusion.

The Machine Gun Company, 1st Infantry, is assigned to the outpost. Machine guns are an especially valuable adjunct to an outpost, for they increase greatly its defensive powers. They are especially useful in covering roads, bridges or other marked lines of approach.

Colonel B has not detailed his light mortar or 37-mm. platoons for duty with the outpost. However, he directs the commanders thereof to reconnoiter suitable positions for these weapons in case of attack. Colonel B is aware that the 37-mm. gun will generally not be suitable for night firing. He directs the lieutenant commanding the light mortar platoon to reconnoiter a position in the ravine east of Felty S. H. for the purpose of covering the ravine west of hill 607 as far north as the Hanover Road. This position is very near the line of resistance and is an especially favorable target for the light mortars. The lieutenant commanding the 37-mm. platoon reconnoiters a position in the vicinity of hill 647. Had Colonel B assigned these two platoons to the outpost, there would have been no objection, although no need for it is seen in the present situation, with little or no danger that the enemy will attack.

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THE ADVANCE GUARD ORDER

While the advance guard order has been written in the formal style, it would actually have been fragmentary and given verbally in order to save time and permit Major C, the outpost commander, to establish his outpost with the least practicable delay.

It has already been noted that at 1:00 PM, Colonel B and Major C were riding together at the head of the support of the advance guard. Upon receipt of the order for the halt for the night both would probably rein off to the side of the road, dismount and with the aid of the map study the new situation together. As a result of this study Colonel B would give Major C the following verbal order:

"You are acquainted with the situation as regards the enemy. There is no change.

"The division halts for the night and goes into camp at Sells Station and along the road to the east.

"The advance guard (less your battalion, the regimental machine gun company and one platoon of cavalry which will constitute the outpost) will camp in this vicinity (pointing).

"The 1st Squadron, 6th Cavalry, will continue to cover our front until 7:00 PM, when it will retire and camp hereabouts for the night, continuing its reconnaissance to the front at dawn tomorrow.

"The outpost under your command will be established along the line Felty S. H.—Pleasant Hill S. H., which in case of attack will be held. Observe particularly the Hanover Road and Baltimore Turnpike.

"The baggage wagons and the rolling kitchens will join their organizations. The latter will be refilled by the ration wagons when they come up this evening. Upon completion of the issue, ration wagons will rejoin the park of the regimental train.

"My command post: Bashore Mill."

In issuing this order Colonel B has relied entirely upon his map. It will be the exception when the commander of a divisional advance guard will issue his advance guard order establishing the outpost based on a personal reconnaissance. This is owing to two reasons:

1. From a map he will be able to grasp more quickly the road net upon which the outpost system must be based, which he will rarely be able to do from a personal reconnaissance such as he could make in the time at his disposal.

2. The desirability of placing the troops in camp and those elements of the outpost in position with the least practicable delay so as to avoid unnecessary fatigue. Nothing is so tiring and so subversive of the discipline and morale of

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troops as to keep them waiting at the end of a long day's march while a decision is being made as to where they will take station or where they will camp.

As soon as Colonel B has given Major C his orders, he directs his operations officer to make a reconnaissance of the fields selected from the map as camp sites, with a view to determining whether or not they are suitable for the elements of the advance guard which are to occupy them. At the same time he directs a motorcycle courier to present his compliments to each battalion commander of infantry and artillery in the reserve of the advance guard and to the company commanders of the Headquarters Company, 1st Infantry, Company A, 1st Engineers, and the 4th Ambulance Company, to direct them to report to him at once at these crossroads.

When they report he gives them the gist of the order given Major C, and in addition indicates to each where his organization will go into camp.

By the time that they report to Colonel B, the operations officer has probably returned and is in position to recommend any changes that may seem desirable in the camp sites. Each commander then reconnoiters his own camp site, leaving an assistant on the road to guide his organization to the camping ground.

By the above measures Colonel B hopes that each organization can be marched directly to its camp site and placed in camp with the minimum of delay.

The Outpost Order

As has already been stated Colonel B and Major C were together at the crossroads 800 yards southeast of Bashore Mill when the division order was received by Colonel B and the latter issued his instructions to Major C. Both officers had talked the situation over and as a result any points that might not have been clear to Major C, Colonel B quickly explained. This has been a great advantage to Major C, and by the time that Colonel B had finished he is practically ready to issue his own orders.

Major C is given the troops already mentioned and is

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informed of the line to be held in case of attack. All other details as to the establishment of the outpost are left to him.

Major C's first problem is to block all of the main avenues of approach from the direction of the enemy. If he accomplishes this object he may rest assured that he has provided reasonable security for his main body when the enemy is somewhat distant. He therefore devotes his attention mainly to the road net when, with Colonel B, he studies the situation. What he is concerned with is the proper location of his supports. These as a rule should cover the main roads. As the enemy draws near, it may be necessary to occupy intervening ground, but even then in a halt for the night his first duty is to block the roads, for troops in force must keep to the roads, especially at night.

As regards the location of his main body, Major C sees that the enemy, should he advance to the attack, might approach over any one of three main roads:

1. The Hanover Road.
2. The Baltimore Turnpike.
3. The Bonneauville—Whitehall road between the two above mentioned roads. This road forks at Whitehall and crosses the outpost position at Felty S. H., 633 and Pleasant Hill S. H. It is the road that Major C believes is the most natural line of approach for the enemy in an attack on the 1st Division.

Major C therefore comes to a quick decision to place a company at road junction 577, northeast of Felty S. H., another company at crossroads 633, about 2500 yards west of Bashore Mill, and a third company at Pleasant Hill S. H. The flank companies will cover the Hanover Road and Baltimore Turnpike. Each of these companies constitutes what is called a *support*, and the three companies a *line of supports*. The line that these companies occupy is generally the line to be defended in case of attack and is also called *the line of resistance*. This line from the road junction northeast of A. Rifle south to Tollgate, on the Baltimore Turnpike, is a little over 6000 yards long, or about 2000 yards per company, which is an average front for a support company in a situation similar to the one under discussion.

Having decided upon the location of the support companies, Major C must next make a division of the front between them. The ground that each support covers is called a *sector*.

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In defining the sectors, Major C realizes that it will assist him as well as the support commanders if he can pick out some natural feature of the ground such as a stream, ravine, fence, lake or swamp. Something that is easily recognized on the ground is what he wishes to use in designating the limits between sectors. While a road would make an excellent division line between sectors, for it is easy to find and easy to describe, Major C would never use it, for the framework of the outpost is built around the road net, and his guiding principle is to block the roads that are the natural lines of approach of the enemy. This is accomplished by placing supports on or near them, thereby avoiding any question as to responsibility for covering them which might exist were the roads used as a dividing line between sectors. The fence about 150 yards southwest of Felty S. H. is used as the limit between the sectors of Supports Nos. 1 and 2, and the fence 400 yards south of 633 as the limit between Supports Nos. 2 and 3. These limits of sectors result in the assignment of more frontage to Support No. 3 than to either of the other two supports, but Major C believes that under the circumstances Support No. 3 can cover this front without weakening the outpost.

Beyond indicating the location of each support and its limits, Major C leaves to each support commander the details as to the dispositions of the elements of the support. When he makes his inspection he will cause to be made any changes that appear to him to be necessary. He will, however, refrain from making any changes during his inspection except where the dispositions seem to be exceedingly faulty, for he realizes the discomfort that it will cause the men to move after they are once settled for the night. Further, any change is liable to cause a complete rearrangement of the element under inspection, a thing to be avoided if possible.

The cavalry platoon will be used at the front during the night, being in position at 7:00 PM. Major C directs the lieutenant in charge to divide his platoon of 32 men into two parts, one part taking position at St. Luke's Church and observing the Hanover and Bonneauville—St. Luke's Church roads, and the other part at road junction 621, about 1800 yards southwest of St. Luke's Church, observing the Baltimore Turnpike and roads to the west.

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The machine gun company is assigned to the reserve of the outpost. The commander, however, is directed to reconnoiter gun positions to be used in case of attack. There appears to be no necessity for placing the guns in position with the enemy at Gettysburg. Were the enemy within, say, five miles of Major C's outpost line, he undoubtedly would place the guns in position as a matter of precaution.

The battalion surgeon automatically attaches a litter squad (two men) to each support company as it leaves the battalion to proceed to its position. A battalion aid station is established at the reserve.

The battalion intelligence officer at once takes steps to establish an observation post. From a study of his map he proceeds first to hill 647, south of crossroads 633, from which it would appear that he might obtain the best view of the front. An actual reconnaissance of the outpost position will decide the location of the observation post or posts that he will establish.

Had the situation demanded and had there been danger of attack, Colonel B would have had telephone lines run from his headquarters to the outpost commander and from the latter to the stations of the three support companies, but with the enemy at Gettysburg he does not feel the need of placing this additional labor on the signalmen in view of the probable continuance of the march in the morning when the lines should be gathered up. Nor does Colonel B deem it advantageous to send one of the regimental radio sets to Major C for his headquarters when the location of his command post is but little more than 1000 yards from that of Major C. A motorcycle courier or mounted or bicycle orderly could deliver a message over this distance more quickly than it could be transmitted by radio unless the road were under very heavy shell fire, a situation not contemplated in this problem.

As far as concerns Major C's communications with his support companies, he has at his disposal a motorcycle courier, furnished by Colonel B, and in addition one mounted orderly, three bicycle orderlies and four men who can be used as runners, who form part of his battalion headquarters. Each support company has two bicycle orderlies and in addition eight runners in the company headquarters.

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The distance is so short between Support No. 2 and Major C's headquarters that the use of the projector does not seem advisable. Projector communication between Supports Nos. 1 and 3 with outpost headquarters might be established, but Major C expects to rely principally upon the bicycle orderlies and runners for communication within the outpost. It has probably been noted that each support commander attaches one runner to each picket. There would have been no objection had each picket had two runners, as each platoon has four runners in addition to the eight in company headquarters.

Finally, Major C believes that the terrain lends itself unusually well to the solution of the problem assigned him. Where troops are operating in large masses, as in armies, and covering wide fronts, the advance of each division must conform to the general front of the army. Divisions, under these circumstances, will often find the ground assigned them most unsuitable for the posting of an outpost, nevertheless they will be forced to make the best possible use of it in order that their front may conform to the general front of the army.

It is 1:15 PM by the time that Major C has received Colonel B's instructions and has made his decision as to how he will dispose the troops assigned to the outpost. In the meantime the support and other elements of the advance guard have continued the march. Major C has with him at this time his three bicycle orderlies. He writes the following message to Captain A, commanding the advance party, and hands it to one of the bicycle orderlies for delivery:

Outpost, 1st Div,
Crossroads 1000 yards southeast of BASHORE MILL,
1 Sept 19, 1:20 PM.

Captain A,
By courier.

Division halts for the night and goes into camp.

Our battalion forms the outpost along the line FELTY S. H.—PLEASANT HILL S. H.

When the advance party reaches crossroads 633, halt and establish march outposts covering roads to your north, west and south.

Remain in position until relieved by Company C which will constitute Support No 2 at crossroads 633, when you will withdraw to woods about 1000 yards west of BASHORE MILL and constitute part of the reserve of the outpost.

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Company B will be Support No 1 at FELTY S. H. and Company D Support No 3 at PLEASANT HILL S. H.

Notify the cavalry point to halt and remain halted when you establish march outpost.

My command post: Farm house 1300 yards west of BASHORE MILL.

C,
Major.

Major C then mounts his horse at 1:20 PM and moves forward to the support, signalling to the connecting files to halt. This signal is repeated along the line of march and as he rides up he finds the head of the support halted at road junction 566. As he passes each company of the support he directs its commander to report to him at the head of the support. When all reach this point he gives the following verbal order:

"Gettysburg is occupied by a hostile division. Our cavalry drove back on Gettysburg hostile cavalry encountered this morning at Bonneauville and Two Taverns.

"Our division halts for the night and goes into camp as follows:

Main body at Sells Station and to the east.

Reserve of advance guard in vicinity of Bashore Mill.

"The cavalry remains out to the front until 7:00 PM, when it retires behind the outpost.

"Our battalion, the machine gun company and one platoon of cavalry will establish the outpost along the line Felty S. H.—Pleasant Hill S. H., which will be defended in case of attack.

"Company A will establish march outposts at crossroads 633 while you are moving into position.

"Captain B, your company (B) will constitute Support No. 1 at road junction 577 about 250 yards northeast of Felty S. H. You will cover the sector from the road junction 150 yards northeast of A. Rifle to the fence 400 yards southwest of road junction 577. Observe particularly the Hanover Road.

"Captain C, your company (C) will constitute Support No. 2 at crossroads 633. You will cover the sector from the left of Support No. 1 to the fence 450 yards south of crossroads 633. Notify Captain A when your support is in position so that he may withdraw and join the reserve in that clump of trees (pointing) (1000 yards west of Bashore Mill).

"Captain D, your company (D) will constitute Support No. 3 at Pleasant Hill S. H. You will cover the sector from the left of Support No. 2 to Tollgate. Observe particularly the Baltimore Turnpike.

"The machine gun company will join the reserve. Gun positions for use in case of attack will be reconnoitered covering the several roads of approach.

"The platoon of cavalry will be in position at 7:00 PM at St. Luke's Church with part at crossroads 621. It will observe the Hanover Road and Baltimore Turnpike and roads between these two roads.

"My command post: At that farm house (pointing) (1300 yards west of Bashore Mill).

"C,
"Major."

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The organization commanders are given an opportunity to ask any questions for the purpose of clearing up the situation, after which all join their organizations.

Major C then turns to Second Lieutenant I (battalion intelligence officer) and directs as follows:

> "You have heard the order for the outpost.
> "Make a reconnaissance at once with a view to establishing an observation post. Hill 647 looks from the map like a suitable position."

Major C mounts his horse and rides over to the farm house (1300 yards west of Bashore Mill) where he finds First Lieutenant D and the battalion headquarters detachment busy establishing outpost headquarters. As he turns off of the main road where the road from the farm house enters it he passes a sentinel posted to direct messengers to outpost headquarters. In addition a signboard with "1st Bn., 1st Inf." painted on it, is placed in a conspicuous position at this road junction indicating the direction to battalion headquarters. In his rounds of the farm house and grounds he notes that Lieutenant D has the dropping ground for the aviators already in operation in the field just west of the farm house. Two signalmen are sitting near by, with the battalion panel, on the lookout for messages dropped by friendly airplanes.

As Major C is about to start out on his inspection of the outpost a motorcycle orderly reports to him, stating that Colonel B had directed him to report for duty. In studying his map, Major C noted that it would be practically impossible for him to inspect the entire outpost line before dark on account of the distances, but with the motorcycle with side-car he can accomplish this duty with ease. He then jumps into the side-car and directs the orderly to hill 647, where he hopes to get an extended view of the terrain while the support companies are moving into position.

Turning now to the commanders of the support companies it will be seen how they solve their problems.

As he approaches his company each captain commands:

> "Officers and sergeants, report to me."

While they are assembling the captain takes out his map and with the aid of it and the notes that he made at

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the conference with Major C, he studies the situation and comes to a decision as to how he will carry out the task assigned his company.

Captain B, commanding Company B, which is designated as Support No. 1, at road junction 577 decides as follows:

1. To march his company with a small advance guard via the Washington Meeting House—554—581 road to 577.
2. To detach a section enroute at 581 with instructions to post a squad at the road junction about 600 yards northeast of 581.
3. Upon arrival at 577 to send a section to road junction 582 with instructions to send forward one-half squad to road junction 606 and one-half squad to road junction 594.

Each section posts one or more sentinels for its immediate protection, as do the squad and half-squads sent forward by the sections. For the immediate protection of the company Captain B also posts one or more sentinels. Each section details patrols to visit the detachments that it sends forward. Captain B, from his company, does likewise, his patrols visiting the two sections to keep in touch with them. The solution of the Fourth Requirement gives exactly the number of men that are continually on duty and just what duty they are performing.

From the above it is seen that Captain B has covered the sector assigned him by placing detachments on the roads approaching his sector from the direction of the enemy. These detachments in turn have pushed forward smaller detachments, while the latter have protected themselves by sentinels. These detachments which Captain B has sent forward are called *outguards*. For convenience outguards are further subdivided into *cossack posts, sentry squads* and *pickets,* depending upon their strength. A cossack post consists of á corporal and three men; a sentry squad of one squad, a corporal and seven men, providing for three reliefs for a double sentinel post, with one extra man.

A picket consists usually of a section (two or three squads) but will rarely contain more than two sections (six squads). The strength of the picket is dependent upon the number of detachments that it sends forward. These detachments may consist of cossack posts, sentry squads, or single or double sentinels, the latter being called *single* or *double sentinel posts.* Cossack posts and sentry squads may also be sent out directly from the company.

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The line of outguards is called the *line of observation.* The duty of outguards is to report promptly any movements of the enemy and in case of attack to fall back on the support fighting, in order to give it time to prepare for defense.

Outguards are numbered from right to left in each support, as are supports in each outpost. Similarly in each picket, the detachments are numbered from right to left in that picket.

With this terminology it is now possible to apply the correct name to each detachment that Captain B makes. The section at road junction 581 is called Picket No. 1, Support No. 1. The squad at the road junction 600 yards northeast of road junction 581 is called Sentry Squad No. 1, Picket No. 1, Support No. 1. Upon his inspection, Captain B finds that the picket commander had placed a cossack post on hill 607, west of 581. This will be called Cossack Post No. 1, Picket No. 1, Support No. 1. Similarly the section at road junction 582 is called Picket No. 2, Support No. 1, and the two half-squads that are sent to road junctions 594 and 606 are called Cossack Posts Nos. 1 and 2, respectively, of Picket No. 2, Support No. 1.

When Captain B has made his decision as to his dispositions, and his officers and sergeants have assembled he issues the following verbal order:

"A hostile division occupies Gettysburg. Our cavalry encountered hostile cavalry at Two Taverns and Bonneauville this morning and drove it back towards Gettysburg.

"Our division halts for the night and goes into camp east of here. The reserve of the advance guard camps along the creek that we have just crossed. Our cavalry remains to the front until 7:00 PM, when it retires behind the outpost.

"Our battalion, with the machine gun company and one platoon of cavalry, will establish the outpost along the line Felty S. H.—Pleasant Hill S. H., which in case of attack will be defended.

"Our company will be Support No. 1 at road junction 577 (pointing on the map) covering the sector from the road junction 200 yards northeast of A. Rifle to the fence 400 yards southwest of road junction 577 (indicating).

"Companies C and D will take position at crossroad 633 and Pleasant Hill S. H., respectively, as Supports Nos. 2 and 3.

"Company A, which has established march outposts at crossroads 633, will, when relieved by Company C, join the reserve at that clump of trees (pointing) (1000 yards west of Bashore Mill).

"Lieutenant S, take the 1st Section, 1st Platoon, and as advance guard cover the march of the company to its position at 577. Upon arrival there establish march outpost.

"March by this road (pointing to Washington Meeting House —554—581 road).

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"The remainder of the company will follow you at 500 yards.
"Move out at once.
"Posts."

Company B makes its march to road junction 581 without incident. Upon reaching this point Captain B halts the company and directs Sergeant R, commanding the 1st Section, 2d Platoon, as follows:

"Your section will be Picket No. 1, at this point (581).
"Establish a sentry squad at the first road junction northwest of here (pointing). Observe especially the road to the west.
"Send a patrol every two hours to the support, starting at 9:00 PM.
"A patrol will be sent from the support to your picket at intervals during the night.
"The outpost cavalry will be in position at 7:00 PM, at St. Luke's Church (pointing).
"The remainder of our company camps at road junction 577, about 800 yards down this road (pointing).
"Supper for your men will be sent to you from the company.
"Move out."

As soon as Sergeant R moves his section to the side of the road Captain B with the remainder of the company continues his march to his station. When he arrives there, he halts the company and, assembling the remaining officers and sergeants, issues the following verbal order:

"Lieutenant O, take the 2d Section, 2d Platoon, and march west on this road about one-half mile to the first road junction (582) where you will establish Picket No. 2. Send a cossack post to the road junction (594) north of your post and a cossack post to the second road junction (606) west of your post.
"Detail two patrols, one to patrol hourly on the hour starting at 8:00 PM, over the route 594—609—606—582, and to include Support No. 1 every two hours starting on the 8:00 PM tour. The other patrol will patrol every two hours on the even hour starting at 8:00 PM and will follow the route Small—Whitehall S. H.—610—611—582. This latter patrol will establish communication with the picket of Support No. 2, which will probably be located at 610 (indicating on map).
"Sergeant M (2d Section, 1st Platoon) detail from your section three noncommissioned officers and fifteen privates for guard duty. Post one sentinel at this point (road junction 577), one sentinel on this road 250 yards west of here and one sentinel at camp of company. Send a patrol on the even hour starting at 8:00 PM to Sentry Squad No. 1, Picket No. 1, and return, and on the odd hour starting at 9:00 PM, it will visit Cossack Post No. 2, Picket No. 2 at the third road junction west from here.
"The remainder of the company will camp in those woods along the creek (pointing) (200 yards west of 577).
"The rolling kitchen should join us in about an hour when supper will be prepared and sent to the pickets.
"Lieutenant O, move out.
"Sergeant M, make your details after we reach camp."

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Captain B marches the remainder of the company to the woods indicated above and places it in camp. First Lieutenant X (second in command) has already selected the camp site and leads the way as Captain B approaches. Captain B turns the company over to Lieutenant X and proceeds on an inspection of the pickets, mounted on the bicycle of one of his orderlies. The other bicycle orderly accompanies him. He first visits Picket No. 1 at 581 and, accompanied by the picket commander, inspects the posts of his picket. Upon completion of this inspection he returns to road junction 577 and rides out to Picket No. 2 which he inspects in a similar manner. Both pickets appear to be properly posted and Captain B therefore makes no changes. While on this inspection he notes the features of the terrain with a view to the defensive measures to be taken in case of attack. He selects a position for his support on hill 603 and decides as to what trenches he would dig and where he would place them. With the enemy at Gettysburg he does not believe, however, that it is necessary to do any actual work on the position. He also directs the picket commander at 581 to reconnoiter a position for his picket on hill 607, west of 581.

He then sends the following written report to Major C, the outpost commander:

Support No 1,
Road junction 577,
1 Oct 19, 5:30 PM.

To Major C,
By runner.

Enclosed find sketch showing disposition of Support No 1. It shows location of each fraction of the support, pickets, sentry squads, sentinels and routes to be taken at night. Nothing has been seen of the enemy.

B,
Capt,
Comdg Support No 1.

The manner in which Sergeant R, commanding Picket No. 1 at road junction 581, conducts his section upon receiving Captain B's instructions will now be examined. Sergeant R moves the section to the side of the road to permit the company to pass it, after which he gives the following order in the presence of the section:

"Corporal T, take your squad and move out this road (pointing) to the north about 600 yards to a road junction, where you

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will establish a sentry squad. Observe particularly the road to the west. Post a single sentinel during the day and a double sentinel at night. Send occasional patrols to crossroads 637 and every two hours to the picket at this point. You are the right of Picket No. 1, Support No. 1. Conceal the members of your squad in the orchard near by. Your supper will be sent you. Do not light a fire.

"Move out."

Corporal T moves out toward his post with his squad in patrol formation.

Then turning to Corporal Z:

"Corporal Z, take three men of your squad including an autorifleman and establish a cossack post on that hill (pointing to 607). Observe the farm road over the hill to the west. Do not light a fire. Supper will be sent you.

"Move out."

Then turning to the remainder of the picket he says:

"This is Picket No. 1, Support No. 1. The outpost reserve camps in a clump of trees about 2000 yards south of here near where we left the battalion to march here. The remainder of our advance guard and our division camps east of that place. The remainder of our company, which forms Support No. 1, camps near a road junction about 800 yards down this road (pointing). The enemy is at Gettysburg. This picket is the extreme right element of the outpost. Upon being dismissed men not on duty will remain in this orchard (G. Martz) (pointing)."

Before dismissing them he details the three men on the right for the reliefs of Sentinel Post No. 1 at road junction 581. The next six men are detailed for patrol duty (a single patrol of two men, three reliefs). All members of the patrol go over the route before dark. Starting at 8:00 PM, and every hour on the hour until daylight, the patrol visits the sentry squad and cossack post of the picket, and includes Support No. 1 every two hours, commencing on the 9:00 PM tour. The two remaining men are used for any special patrolling.

Corporal T's sentry squad is at the road junction 200 yards northeast of A. Rifle.

As previously stated, Corporal T moves out as directed in patrol formation, in double column of files, one column on each side of the road. The leading file of each column is about 50 yards ahead of the following file. The rear file follows the squad at about 50 yards. Upon reaching its station Corporal T moves his entire squad to the orchard

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on the east side of the road while he reconnoiters. He places one man on duty in the orchard where he can observe the two roads, that to the north and that to the west. Taking one man with him he reconnoiters the road to the west for about 500 yards where he can obtain a good view of the terrain in all directions. Upon his return to the squad he goes out to the crossroad to the northeast (637) and on to the crossing of the Conewago west of Brushtown, when he returns to the squad.

At dusk he doubles the sentinel post. No change is made in the location of the sentry squad. Sometimes it may be well to change the day position of an outguard at night. This would especially be the case where a hostile raid is feared. Where changes are made, the new position is reconnoitered during the day, but the change is not effected until after dusk.

Picket No. 2 is posted in a similar manner to the above. The principal point in the conduct of Picket No. 2 is sending out the patrol which maintains communication between this picket and the right picket of Support No. 2. All parts of an outpost must be connected up and in constant communication if the outpost is to be efficient. Especially is this the case in a stabilized situation, where there should be mixed posts between the outposts of divisions.

As a rule patrolling by the infantry of an outpost takes place only at night. All patrols, however, must go over their route once before dark. During daylight cavalry is mainly depended upon to give the warning of the approach of the enemy; then, too, the infantry posts from their positions will generally be able to observe all of the ground to their front.

SUPPORTS NOS. 2 AND 3

The orders of Captains C and D to their companies, which are to form Supports Nos. 2 and 3, respectively, are similar to those of Captain B. It is not necessary for these two companies, however, to throw out advance guards during their march to crossroads 633 since Company A has already established march outposts and will cover their march to that point. Beyond that point, however, Company D must provide its own security. In the case of Company B

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it is different, for it is marching to a flank and is practically beyond the protection of the advance guard as soon as it quits the main route of march. All company commanders recall the principle that every detachment, when beyond the protection of its own security detachments, must provide its own immediate covering force. It has been seen that this principle was followed by all the detachments sent out, however small.

Support No. 2 sends out one picket to road junction 610. Only one picket seems necessary, as its flanks are protected by Supports Nos. 1 and 3 and only one road crosses its sector. There is nothing especially to be noted about this support. The posts established by its picket, and the the patrols and their routes will be found in the solution of the Fourth Requirement.

In its march from crossroads 633 to Pleasant Hill S. H., Captain D's company moves by the flank. At the former point he sends forward a section to act as advance guard in the march to his position. He also detaches the 1st Section, 2d Platoon, to move directly west from 633 to the first road junction, thence turning south on the farm road to take position as Picket No. 1 at the second road junction to the south (598). The route taken by this picket in a measure covers the flank march of Captain D's company and at the same time places the picket in position more quickly. The picket commander in turn detaches a corporal and three men (one of whom is an auto-rifleman) as cossack post at the road junction near Grawmer while enroute. Upon reaching Pleasant Hill S. H., Captain D detaches Picket No. 2 at the creek crossing (558W) about 750 yards south of the support. This picket places a cossack post on hill 621 in observation of the Baltimore Turnpike. The remainder of the company is placed in the woods east of the road junction at Pleasant Hill S. H.

The Outpost Cavalry

Colonel B assigns one platoon of cavalry to the outpost. It reports to Major C at his headquarters at 4:00 PM, when the major gives First Lieutenant C, commanding, the following order after explaining to him from the map the dispositions of the outpost:

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"I wish your platoon to observe Hanover Road, Baltimore Turnpike, and the roads in between that approach the outpost. Leave here in time to be in position at 7:00 PM, and take station at St. Luke's Church, with part of your platoon at the crossroads (621) about 2000 yards southwest of St. Luke's Church.

"Feed and water your horses now and get supper for your men. There is no objection to unsaddling."

Lieutenant C immediately returns to his platoon, has his horses unsaddled, permitting them to roll, and then watered and fed. They are tied in the orchard where they are under cover.

Before 6:15 PM, the platoon saddles up and at that hour mounts and proceeds to St. Luke's Church via Whitehall S. H. As he passes Support No. 2 at crossroads 633 Lieutenant C informs Captain C where he is going and of his mission. He repeats this information briefly to the picket at road junction 610 as he passes. At this point he directs Sergeant Z with four troopers to trot out and precede the platoon at 500 yards to St. Luke's Church as a point.

After his conference with Major C in the afternoon, Lieutenant C had studied his map and before he saddled up comes to a decision as to how he will carry out his mission. Upon reaching St. Luke's Church he is therefore ready to issue his orders very quickly.

His decision was as follows:

1. To place Sergeant G with 18 men at road junction 621 with orders to establish standing patrols of two men each at road junction 531, at school house at road junction north of Snyder, and at road bend north of Germantown.
2. The remainder of the platoon under his immediate command to establish standing patrols at Sweet Home S. H. and road junction 617 on the Hanover Road.
3. The patrols to be relieved every two hours. Horses not to be unsaddled, unbridled or tied and to be placed under cover.
4. A single man from those not on duty to be posted as sentinel over the platoon. Sergeant G does likewise for his detachment.

By 8:00 PM, Major C has finished his inspection of the outpost and has received from each support commander a sketch showing in detail the location of the various elements of his support. With the aid of these sketches he has his adjutant prepare a combined sketch showing in detail the dispositions of the entire outpost. When completed this is sent to Colonel B for his information.

Major C, during his inspection, has not found it necessary to make any changes in the dispositions of supports or

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other elements of the outpost. Should he have caused changes to be made, he would have issued a second outpost order embodying the changes where they were of general interest to all concerned; otherwise he would probably have given orders verbally on the spot. Additional information of the enemy as well as instructions as to defensive measures might be incorporated in a second outpost order.

A Detached Post

As has been seen, Colonel B expedites the issuing of his order in every possible way. It is only after he has watched the reserve going into camp and has ridden over to his headquarters at Bashore Mill and had time to study the situation a little more in detail, that he decides on the advisability of sending a detached post to the crossing of the Conewago about 1000 yards north of Bashore Mill with orders to send a sentry squad to road junction 557, near Emlett. While the danger from this direction seems remote, nevertheless small parties of cavalry might work around this flank and cause annoyance to his own cavalry and trains. Had Colonel B decided not to send out this detached post it would not necessarily have been a mistake; it is a case where the man on the ground who is thoroughly conversant with the situation must decide. It is always a question as to how far the flanks of an outpost should be refused, but there must be a limit. The two principles: reasonable security, and not placing more men on outpost than absolutely necessary to obtain this must guide in answering this question.

Colonel B, therefore sends a message to Major C directing him to establish this detached post, the troops in his reserve furnishing the men.

General Discussion

An examination of the formation of this outpost shows that the distances are generally greater and the front broader than in the case of advance guards. The reason for this lies principally in the fact that in an outpost situation the troops in the main body are at rest and in case of attack must take time to form up, while with an advance guard

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the entire force is in formation and ready to carry out any order immediately.

All texts on the subject state that in no sphere of tactics are there so many different correct solutions for the same problem. All deal in most general terms when the question as to distances between elements of the outpost is under discussion. A person studying outposts for the first time would have a very vague idea as to the approximate distance between the main body and reserve and between the latter and the supports. Beyond saying that in small outposts, the enemy must be kept beyond effective rifle range of the main body, while in large forces beyond effective artillery range, this subject is generally dismissed.

The 1st Division would come under the head of a large force and as such its main body should be beyond effective artillery fire. Does the solution given in this problem fulfil that condition? Colonel B believes it does. From the nearest infantry group, the sentry squad at the road junction near A. Rifle, to Sells Station, the head of the main body, is about 5000 yards. All other front line elements of the outpost are more distant. This assumes of course that the enemy's artillery occupies the position of the front elements of our outposts. The more natural assumption is that the enemy's artillery is at least 1500 yards in front of these observation groups, or at a range of 6500 yards. Even at a range of 5000 yards the artillery would have to have good observation and take time to cause appreciable damage on the head of the main body at Sells Station. It appears, therefore, that this condition is fulfilled.

In order to gain some idea as to approximate distances in outposts it will be well to study the distances as they have been worked out in this problem and then average them.

	Yards
From reserve of advance guard to reserve of outpost	1200
From reserve of outpost to Support No. 1	1760
From reserve of outpost to Support No. 2	1600
From reserve of outpost to Support No. 3	2900‡
Average distance	1680*

‡ Excessive.
* Omitting distance to Support No. 3.

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SUPPORT No. 1	
From Support No. 1 to Picket No. 1	800
From Support No. 1 to Picket No. 2	900
SUPPORT No. 2	*yards*
From Support No. 2 to Picket No. 1	1100
SUPPORT No. 3	
From Support No. 3 to Picket No. 1	850
From Support No. 3 to Picket No. 2	750
Average distance	880

SUPPORT No. 1	
From Picket No. 1 to Sentry Squad No. 1	600
From Picket No. 1 to Cossack Post No. 1	400
From Picket No. 2 to Cossack Post No. 1	400
From Picket No. 2 to Cossack Post No. 2	850
SUPPORT No. 2	
From Picket No. 1 to Cossack Post	500
SUPPORT No. 3	
From Picket No. 1 to Cossack Post	400
From Picket No. 2 to Cossack Post	400
Average distance	500

It is true that at times these distances vary considerably, but from the above there may be taken as an average, from 1000 to 1500 yards for the distance between the reserve of the advance guard and the outpost reserve; between the latter and its supports, from 1000 to 1700 yards; and between pickets and their cossack posts or sentry squads about 500 yards. Bearing in mind that these distances are subject to great variation, depending upon the particular circumstances in each problem, nevertheless they will serve as a guide when a problem is presented for solution. What must be remembered is that the outpost must have depth in order to carry out its mission properly, but the distances between elements must not be so great that elements in rear have not time to come to the aid of those in front in case of attack.

The distance from the reserve of the outpost to Support No. 3 has already been noted as excessive, for 2900 yards is too great under ordinary circumstances, but in this case the situation demands it. A reserve should if possible be located centrally behind the line of supports and at a road junction with roads affording lateral communication, but Major C is unable to find such a position for his reserve.

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It does cover the main route of probable approach of the enemy and is within supporting distance of those supports that Major C believes will be the most likely to need assistance in case of attack.

In conclusion, it is to be borne in mind that Major C's problem was only one of many possible situations. Should the outpost remain in this position for several days while the enemy approached, considerable change would have to be made, for then the intervening ground would have to be occupied and extensive defensive works would have to be constructed. Finally would come a stabilized situation as the opposing forces came into close contact, in which case the present outpost plan would give way to a situation in which the division was deployed for action, each unit covering its own front by observation groups. These situations will be discussed further on.

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Fourth Requirement:

			N.C.O	E.M.
Support No. 1, Co. B, 1st Inf., road junction 577.	Picket No. 1, 1 section (8 squads) 1 runner, road junction 581.	1 sentry squad, road junction, 600 yards northeast of 581.	1	7
		1 cossack post, hill 607.	1	8
		1 single sentinel, road junction 581.		8
		1 patrol (2 men) to sentry squad and cossack post every hour on hour starting at 8:00 PM and to include Support No. 1 every two hours starting at 9:00 PM tour.		6
		3 NCO's.	3	
		Total	5	19
	Picket No. 2, 1 section (8 squads) 1 runner, road junction 582.	1 cossack post, road junction 606.	1	8
		1 cossack post, road junction 594.	1	8
		1 patrol (2 men) every hour on hour to 594—609—606—582 starting at 8:00 PM and to include Support No. 1 every two hours starting at 8:00 PM tour.		6
		1 patrol (2 men) even hour on hour starting at 8:00 PM to Small—Whitehall S. H.—610 (connecting with Picket No. 1 Support No. 2)—611—582.		6
		1 sentinel at picket.		8
		3 NCO's.	3	
		Total	5	21
	From Support	1 patrol (2 men) even hour on hour starting at 8:00 PM from support to Sentry Squad, Picket No. 1 and return; odd hour on hour starting at 9:00 PM to Cossack Post (606) Picket No. 2 and return.		6
		1 sentinel post, 577.		8
		1 sentinel post 250 yards west 577.		8
		1 sentinel post at support.		8
		3 NCO's.	3	
			3	15
		Total Support No. 1	13	55

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			N.C.O	E.M.
Support No. 2, Co. D, 1st Inf., road junction 633.	Picket No. 1, 1 section (2 squads) 1 runner, road junction 610.	1 cossack post road junction 500 yards west 610.	1	3
		1 sentinel post at picket.		3
		1 patrol (2 men) even hour on hour starting at 8:00 PM from 610 to farm road 500 yards west 610, thence southwest to road junction, thence southeast on road to Picket No. 1 Support No. 3 at 598, thence return via farm road east of Grawmer to 610. Odd hour on hour to Support No. 2 at 633.		6
		1 patrol (2 men) odd hour on hour starting at 9:00 PM to Schild—Whitehall S. H.—Small—606 return via 599.		6
		3 NCO's.	3	
		Total	4	18
	From Support	1 patrol (2 men) from 633 to cossack post, Picket No. 1 even hour on hour starting at 8:00 PM.		6
		1 sentinel at road junction 633.		3
		1 sentinel 100 yards north on road.		3
		1 sentinel 100 yards west on road.		3
		3 NCO's.	3	
		Total	3	15
		Total Support No. 2	7	33

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			N.C.O	E.M.
Support No. 3, Co. C, 1st Inf., Pleasant Hill S. H.	Picket No. 1, 1 section (3 squads) 1 runner, road junction 598.	1 cossack post road junction near Grawmer.	1	3
		1 double sentinel post 100 yards west 598.		6
		1 sentinel at picket.		3
		1 patrol (2 men) odd hour on hour starting at 9:00 PM to cossack post, Picket No. 1, Support No. 2,—610—Grawmer to 598. Even hour on hour starting at 8:00 PM to double sentinel, thence Pleasant Hill S. H. and return.		6
		3 NCO's.	3	
		Total	4	18
	Picket No. 2, 1 section (3 squads) 1 runner creek crossing (558W) 750 yards south of Support.	1 cossack post to hill 621.	1	3
		1 patrol (2 men) to cossack post every hour on hour starting at 8:00 PM and every two hours to include Pleasant Hill S. H. Starting at 8:00 PM tour.		6
		3 NCO's.	3	
		Total	4	9
	From Support	1 patrol (2 men) even hour on hour starting at 8:00 PM to Picket No. 1. Odd hour on hour starting at 9:00 PM to Picket No. 2 and its cossack post.		6
		1 sentinel at north road junction.		3
		1 sentinel at Pleasant Hill S. H.		3
		1 sentinel at southeastern corner woods.		3
		3 NCO's.	3	
		Total	3	15
		Total Support No. 3	11	42
		GRAND TOTAL	31	130

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(C-2) A MARCH OUTPOST

MAJOR DUNCAN K. MAJOR, JR.,
Infantry

Map: Gettysburg-Antietam Map, 1:21120, Bonneauville Sheet.

In discussing the subject of march outposts the situation of Company A, 1st Infantry, which formed the advance party of the advance guard of the 1st Division on September 1, 1919, will be examined. It will be seen how this company carried out its orders from Major C, support commander, to form a march outpost to cover the battalion during the time that the remaining companies were moving into position to establish the outpost of the advance guard for the night.

Situation:

Upon receipt of Major C's order, Captain A, in command of Company A, was marching at the head of his company, which at this time was marching west on the Bashore Mill—633 road and was just passing the road leading to the farm house about 700 yards west of road junction 566.

The company was preceded by a section (point) at a distance of about 300 yards, and the section in turn had thrown out a detachment consisting of a sergeant and four men who preceded it at 150 yards. A mounted point of four troopers had just reached the group of houses 300 yards east of road junction 610 while a mounted patrol was at Pleasant Hill S. H. covering the left flank of the advance guard, and another patrol was at road junction 581 (near G. Martz) covering the right flank.

The squadron of cavalry was out to the front, in the vicinity of White Run, covering the Baltimore Turnpike and Hanover Road.

Discussion

The work of the advance party (Company A) during the day has not been very strenuous, owing to the fact that the cavalry has driven in the hostile cavalry, and up to this time Company A has not come into contact with the enemy. The measures that Captain A must take while the battalion is moving into position may therefore be of

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the simplest kind, for there appears to be little likelihood that the movements may be interfered with by any but small parties of hostile cavalry which may have escaped the observation of our cavalry. Security will therefore be best obtained by placing elements of the advance party in position from which they can obtain a good view of the surrounding country.

In making his disposition Captain A is governed also by the probable length of time that his company will have to remain in position. In this case certainly an hour will elapse from the time that his march outpost is in position until it is relieved by Company B, which is to constitute Support No. 2 of the outpost, at crossroads 633. His dispositions are therefore more elaborate than in the case of the hourly ten-minute halt, when elements of the advance party would move but short distances to obtain better observation. In this latter situation the point and flanking patrols are generally halted where they are, except where a movement of 100 or 200 yards will extend their view of the terrain as might be the case if the point were crossing a stream or a ravine. In such a case it should not halt until it has reached the high ground on the far side if that were not too distant. The same principle would apply to flanking patrols that are approaching hills at the time that the halt is ordered; they continue their march to reach their points of vantage.

Again when the front is well covered by cavalry as in the present situation, the measures for security in a march outpost are more simple than when there is no cavalry protection, or when the cavalry has uncovered the front and small parties of the enemy have been encountered. In such a case, the positions taken up must be suitable for both observation and fighting, and the dispositions will be practically those of a defensive position on an extended front. Combat groups will occupy mutually supporting positions.

As soon as he has read Major C's order, Captain A examines his map and notes the ridge that extends generally north and south through crossroads 633. The ground is particularly favorable for both observation and defense. Immediately south of 633 is a hill (647) which commands a view of all the surrounding country. This meets his eye at

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once as a place for the location of an observation post. Were Captain A to establish a march outpost for a ten-minute halt at crossroads 633 with the enemy situation as already indicated, the only precaution that he would take would be to send a patrol, one member of which would be an observer, from the battalion intelligence group to hill 647 to remain there in observation during the halt. The section in advance would halt under cover in observation at the nose 400 yards west of crossroads 633, while the remainder of the company would halt and fall out. The mounted point would halt at Whitehall S. H. where it could observe all roads converging at this place from the west.

But Captain A's problem is not the establishment of an outpost for a ten-minute halt. He may count on his company being in position for at least an hour, and with this factor of time before him he knows that his dispositions should be slightly more elaborate, for in war the military situation is constantly changing.

In addition to having the mounted point halt at Whitehall S. H., an observation post on hill 647 and the section (point) covering the 610—633 road behind the nose 400 yards west of 633, Captain A decides to send a sentry squad to hill 627 (1000 yards southwest of 633) and one to hill 622 (800 yards northwest of 633). He also sends a mounted patrol of two men to Pleasant Hill S. H. to get into touch with the cavalry patrol that is covering the left flank and to direct it to establish a standing patrol there. Another patrol of two men is sent to G. Martz to get into touch with the cavalry patrol that is covering the right flank and to direct it to establish a standing patrol at road junction 581. Upon reaching crossroads 633 the remainder of the company falls out with orders to remain near at hand so as to be able fall in quickly. In the above dispositions the cavalry patrols at 581, Whitehall S. H. and Pleasant Hill S. H. cover the road net sufficiently well to prevent any large bodies of hostile cavalry from getting through, while the infantry outguards on hills 622 and 627 and on the 610—633 road should be able to provide the elements in rear with reasonable security. It will not be necessary for these groups to deploy. If it were assumed that as the mounted point came over the nose west of 633 it was fired

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upon from the group of houses 400 yards east of 610 and had to fall back, then the infantry point ordered to halt under cover of the nose would certainly deploy until the situation cleared up. It might be reinforced by another section while a section would be sent to occupy hill 647.

CAPTAIN A'S ORDERS

Captain A directs a trooper to report to him (eight had been attached to his company for orderly and patrol work) and hands him the following message to Sergeant B, commanding the mounted point:

Sergeant B,
By runner.

Halt when you reach WHITEHALL S. H. and observe roads leading to west. Advance party halts at crossroads 633 and establishes march outposts to cover the support while latter establishes the outpost of the advance guard for the night.

A,
Capt.

To the other troopers who have reported to him he gives the following verbal orders:

"You two men, Smith in charge, will move to the second road junction west of here where you will turn south and ride for about one and one-half miles to a place called Pleasant Hill S. H.

"You may find one of our flanking cavalry patrols there. If you do, direct it to halt there and establish a standing patrol observing the road. If you are unable to get in touch with the patrol, stay there yourselves and carry out this duty. You will be relieved in about two hours."

Captain A's orders to the patrol to go to road junction 581 are similar to those given to Smith.

As the company approaches crossroads 633 Captain A, at the head of the advance party, signals "Halt." This is repeated by the connecting files. Through his field glasses Captain A can see the point (section) halt as it approaches the rise (nose 400 yards west of 633). He halts the remainder of the company at the crossroads (633), where he assembles his officers and sergeants present and gives them the following verbal orders:

"Our division halts for the night and camps east of here, the advance guard east of the railroad that we crossed about half an hour ago.

"This company establishes march outposts at this point while our battalion, which is to constitute the outpost for the night, moves into position.

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"I have already sent a messenger to our mounted point to halt about one and one-half miles west of here, while two other cavalry patrols have gone out as you have probably noticed, one south on this road (pointing) about one and one-fourth miles and one north on this road (pointing) about one and one-half miles.

"As you can see, Lieutenant A's section is halted under cover of that rise (pointing).

"Jones (observer), take Riley and establish an observation post on that hill (pointing to 647).

"Corporal X, take your squad and establish an outguard on that hill (pointing to 622). Observe the country to the north and west.

"Corporal Y, take your squad and establish an outguard on that hill (pointing to 627). Get under cover in the woods and observe to the west and south.

"Corporal Z, establish a signal station in the cupola of that house (crossroads 633) so that you can communicate by flag with the point and with Corporals X and Y and with Jones.

"Sergeant Q (first sergeant), post a sentry at the crossroads.

"When ordered to fall out the company will remain beside the road ready to fall in at an instant's notice.

"The company will probably be on this duty about two hours when we will be relieved by Company B and will join the reserve of the outpost."

To Corporals X and Y and Private Jones:

"Move out."

Afterwards to company:

"Fall out."

Captain A then directs Lieutenant C (second in command) to take charge of the company and goes out to give Lieutenant A (commanding the point) his orders, repeating practically all that he had said to the company and in addition directing him to watch the road to the west as well as his right and left fronts, and to keep under cover as much as possible. Lieutenant A already has a man posted looking for signals from the rear. Captain A tells him where the company signal station is to be located.

Captain A then returns to the company where he finds the men seated on the ground by the roadside. Lieutenant C has permitted them to remove their packs which are neatly piled by squads. All men have their belts on and arms in hand. From here Captain A goes to hill 647 in order to get a better view of the terrain. During this study he is able to plan what he would do should the enemy attack before his company is relieved from this duty. He can also be of great assistance to Captain B when his company comes to take up its duties as Support No. 2 at crossroads 633, for he will have a complete grasp of the situation.

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In disposing his company Captain A has used the simplest form of outpost. The longer a force remains halted and the nearer the enemy the more elaborate does the outpost become.

(C-3) AN OUTPOST IN A STABILIZED SITUATION

MAJOR DUNCAN K. MAJOR, JR.,
Infantry

Maps: Gettysburg-Antietam Map, 1:21120, Bonneauville Sheet.

Situation:

A Blue army, debouching from the mountains west of Gettysburg, has during a successful offensive defeated and driven a hostile Red army east of Gettysburg.

The Blue army commander decides to let the situation stabilize, the objectives laid down in the plan of operations having been reached.

The 1st Division (Blue), which has taken a successful part in the operations during the last days of the offensive, is directed on 15 September, 1919, to organize its sector (to be called Cedarridge) for defense, the line of resistance to be along the ridge, road junctions 593—607—614—F. X. Noel—Bihl. Contact with the enemy along the front held on that date to be maintained.

A few days after the close of the offensive the army commander had commenced thinning out the lines and as a result the zone of action of the 1st Division had been extended. On 15 September, 1919, its limits are as follows:

North: Road junctions 596—593—550—582—562—602 (all inclusive).
South: Hanover Road (inclusive).

The front line, which is still strongly held, is in close contact with the enemy along the ridge, road junctions 596—606 (east and southeast of Cedarridge)—Square Corner. It is continued by other divisions to the north and south.

The division is deployed with regiments side by side, two battalions of each regiment as combat battalions with the remaining battalion of each regiment either in brigade or division reserve.

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Discussion

The situation of the 1st Division on 13 September, 1919, when the offensive operations were brought to a close, was such as are found in open warfare. Fierce fighting has taken place for the possession of hill 609 with its wooded crest, and the ridge extending southwest through Square Corner. On the evening in question, when the battle closes, the front lines are in very close contact, more especially in the woods on hill 609. The taking of this ridge has cost many casualties. A mixing of platoons and companies has undoubtedly taken place during this day's fighting. What is the first concern of the division commander and his subordinates as nightfall approaches?

With the confusion and mixing of units which always take place in battle, all commanders from the highest to the lowest must exert every effort to reorganize their units so that they will be in position to take up the offensive anew or be ready to meet a counter-attack of the enemy. This reorganization of units and the consolidation of the position will generally take place after dark and under the protection of an outpost. Just what this outpost will consist of will depend upon the local situation. However, it will be the local commander's (platoon and company) duty to assure the security of his own immediate front. The measures will vary greatly along the front of even a battalion. In places the opposing lines may be as close as 75 feet or less, while at other points one or two hundred yards may separate the opposing forces. Where the lines are very close it will be impossible to throw out a line of observation, and in such a case security will be obtained by sentries in the front line. At night practically all of the men of a front line platoon will then be in their alert positions so as to be ready to meet any attempt of the enemy to retake any part of the line. Concealment will be obtained through the occupation of shell holes or, where possible, by the construction of entrenchments.

Where the lines are about 100 yards apart security at night will be obtained by throwing out listening posts into "no man's land." These will occupy shell holes where possible. They consist of at least two men but generally of a cossack

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post. They are posted after dark and remain stationary. In addition sentry squads may be sent out. Protection during the day where the lines are within 200 yards of each other is secured by observation posts, in the front line for the platoons thereof, and in rear for the larger units. Listening posts and outguards are withdrawn at dawn.

A situation is conceivable where on part of a battle front the lines at nightfall are 1000 or 2000 yards apart. In such a case it would be necessary to organize an outpost position. This would consist of a line of outguards whose strength would vary from a squad to a platoon, depending on how far they were pushed out. What must always be kept in mind is that contact once gained with the enemy must never be lost. These outguards would be thrown out by the platoons or companies in the front line. They would maintain their positions during the day.

While every effort is being made on the night of the 13 September, 1919, in the problem under discussion to consolidate the position and reorganize the troops in depth, it may be expected that the front will be strongly held, much more so than it will be after the position becomes stabilized. This is so because unit commanders are bound to take every precaution to hold every foot of ground that they have gained by hard fighting. Further, from a local commander's viewpoint the position is a strong defensive one, certainly along hill 609. Moreover, in the hands of the Blues it affords excellent observation over the valley of the Conewago east of Cedarridge, while in the possession of the Reds this view would be cut off from Blue ground observation.

The army commander has designated the ridge, road junctions 593—607—614—F. X. Noel—Bihl as the line of resistance. From the division commander's viewpoint the ridge, hill 609—Square Corner, seems preferable. This often is the case where there is a long battle front. The division, however, is only a very small part of the whole and its line of resistance must conform to the general battle front.

In a stabilized situation the position of the line of resistance will vary depending upon the intentions of the commander. In one case it might be along the ridge, hill 609 —Square Corner, when for all practical purposes the line of

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resistance and the outpost line would coincide. Again it might be along the ridge, road junctions 593—607—614—F. X. Noel—Bihl, when an outpost line would be established along the ridge, hill 609—Square Corner. Or again the line of resistance might be 6000 to 8000 yards to the west of the ridge, hill 609—Square Corner on the ridge north of J. Spangler, in which case the outpost would consist of a position echeloned in depth and probably including the two ridges under discussion. In this latter case the outpost position is weakly held, but strong enough to ward off small raids and to prevent anything but a general enemy attack from penetrating to the line of resistance. Where the commander fears that his line of resistance, if near, will be brought under an annihilating artillery bombardment in the event of a hostile general attack, these dispositions will be resorted to. By its weakness and its deployment in depth the outpost will cause a dispersion of the hostile artillery fire which will enable it to carry out its mission without suffering excessive losses, while at the same time it will interfere considerably with the enemy's attack and gain time for the troops in rear to man the line of resistance.

Often, the end of the day's fighting will find the troops in a very unfavorable position as regards defense. Should no further advance take place, the line of resistance must certainly be found farther to the rear, while the outpost line will probably remain where the most advanced elements were at the close of the fighting.

The danger of surprise also has a tendency to cause the line of resistance to be placed sufficiently far from the enemy's position so that troops may have time to man the position, while at the same time they may obtain more rest.

From the above discussion so far as concerns security in a stabilized position there appear to be three general situations:

First. Where the line of resistance and outpost line coincide as they do in the situation of the 1st Division on the night of 15 September, 1919.

Second. Where the line of resistance is several hundred yards from the enemy's position and the outpost consists of a line of outguards.

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Third. Where the line of resistance is 6000 to 8000 yards from the enemy's position and the outpost takes the form of a defensive position, organized in depth and weakly held.

In the first situation sentinels in position in the front line offer the first resistance to the enemy, at the same time giving the alarm in case of attack. The number of sentinels will depend upon the situation. During the day observation posts will watch every sign of movement within the enemy's lines, in order to give their organizations timely warning of any threatened attack.

In the organization of the Cedarridge sector the problem for the division commander to solve comes under the situation given under the second heading. As already stated, the division is deployed with two battalions of each regiment in the first line and one battalion of each regiment in brigade or division reserve. Each combat battalion has two companies in support and two in local (battalion) reserve. Each of the support companies is divided into three echelons: 1. Outguard. 2. Combat or security echelon (firing line). 3. Support. As a rule the outguard from each company varies in strength from a squad to a platoon. The strength will depend upon its distance from the firing line and also upon the importance of the position that it holds. From the line of resistance to the outpost line on hill 609 is over 1000 yards. A squad would therefore only be bait for the enemy, especially where the contact is as close as it is in this situation. Further, hill 609 is of great importance to the 1st Division as a site for an observation post. For these two reasons at least one platoon from each first line company should be sent out as an outguard. On account of the wooded nature of the ridge, it might be necessary to send two platoons from each of the front line companies of the northern regimental sector. Only a reconnaissance of the ground and an intimate knowledge of the situation could determine that. There is no doubt, however, that to hill 609 each front line company will send forward a minimum of one platoon as outguard. With the outpost line and line of resistance distant at least 1000 yards, each battalion might send forward a whole company rather than for each front line company to send forward a platoon. This, however, would only be where the two lines (outpost and re-

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sistance) were somewhat distant. Each company as a rule covers its own front by detaching an outguard.

The outpost would not consist of a continuous line but rather of a series of mutually supporting combat groups. In the woods these combat groups would necessarily be closer together than in the open. They would be echeloned in checkerboard fashion, and their orders would contemplate plans for counter-attack in the event of local raids on adjacent combat groups. On the 609 hill ridge and its continuation to the southwest it may be expected on 15 September, 1919, to find the front line troops occupying shell holes and hasty entrenchments in a more or less continuous line. The more entrenchments that have been dug, the better, for if the enemy is to be deceived as to the defensive organization, the location of combat groups must be concealed from him in order to cause him to scatter his artillery fire, as well as to make his planning for raids difficult.

While it is more usual to deploy the platoon in one line for defense, it may be deployed into two echelons on the outpost line. However, this will depend upon circumstances. The outguard must not be so weak that it cannot ward off a small raid before support can come to its aid. This support may take the form of fire, or of counter-attack by local supporting units, or both.

Where the outguard consists of a platoon, it will protect its immediate front by double sentinels, cossack posts or sentry squads.

Machine Guns

It will be the exception to place machine guns with the outpost in a situation such as the one that faces the 1st Division. Machine gun support may, however, be given by machine guns so placed on the line of resistance that they can place bands of fire to cover the flanks of the outguards. Outguards must depend for their defense principally upon their own automatic rifles so placed as to fire to the front and flanks. Where the line of resistance is 6000 to 8000 yards to the rear and the outpost takes the form of a defensive position, machine guns should not be placed in front of the line of resistance of the outpost.

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Stokes Mortar and 37-mm. Gun

As a rule these weapons would not be used in the outpost in the situation under consideration. Their position is near the line of resistance. From there they can support the outpost and at the same time assist in the defense of the line of resistance in the event of a general attack.

Patrols

The amount of patrolling in a stabilized position will depend very much upon the width of "no man's land." In some cases it may be impossible to send out patrols, while in other situations the main reliance at night for giving warning of a hostile raid or general attack will have to be placed upon the patrols sent out at least as far as the enemy's front line. The distant patrols sent out to gain information will generally receive their instructions from the battalion commander whose front they are to cover, and will be under the immediate direction of the battalion intelligence officer who has at his disposal a trained personnel for just this purpose. In the makeup of these patrols only one or two members of the battalion scout group will accompany each patrol. For near reconnaissance, such as the examination of our own front wire, each outguard commander sends out the necessary patrols. What must be remembered is that the patrolling must be continuous during the night and especially active just before dawn.

(C-4) SECURITY AT A HALT—MAP PROBLEM

Major Duncan K. Major, Jr.,
Infantry

Maps: Gettysburg-Antietam Map, 1:21120, Emmitsburg and Taneytown Sheets.

Situation:

The 1st Division (Blue) in hostile territory, debouches from the mountains west of Emmitsburg via the Waynesboro Turnpike October 1, 1919, enroute to Westminster.

As the support of the advance guard reaches the

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western exit of Emmitsburg at noon, the column halts for ten minutes. At this time the advance guard commander, Colonel A, who is with the support, receives the following message from the division commander:

1st Div,
1 Oct 19, 11:45 AM.

CO Adv Gd, 1st Div,
By courier.

Our observation squadron reports that at 11:30 AM this date the streets of TANEYTOWN appeared to be crowded with hostile infantry. East of that town Red infantry and artillery were seen leaving the TANEYTOWN—WESTMINSTER road and going into camp. This division halts for the night and goes into camp, the main body west of EMMITSBURG, along the EMMITSBURG TURNPIKE.

The advance guard will camp east of EMMITSBURG and establish the outpost, which will be supported in case of attack.

The baggage section and filled ration section of the field trains will join their organizations.

Division command post: Townhall, EMMITSBURG.

X,
Maj Gen.

While Colonel A is reading the above message a cavalry courier hands him the following message:

1st Sq, 4th Cav,
Road junction 438, 1½ miles west of BRIDGEPORT,
1 Oct 19, 11:30 AM.

CO Adv Gd, 1st Div,
By courier.

Hostile cavalry holds the crossings of the MONOCACY RIVER from HARNEY south to STULL (347.1—728.1). Attempts to cross to the east bank of the MONOCACY have failed.

Red troopers captured this morning at BRIDGEPORT state that they belong to the 3d Sq 8th Cav, which is part of the 15th Div, and that they heard that the division was to march today from its camp east of WESTMINSTER to the vicinity of TANEYTOWN where it was to camp tonight.

I shall leave detachments at the crossings of the MONOCACY mentioned above and move south with the bulk of my squadron in order to cross to the east bank of the MONOCACY and reconnoiter toward TANEYTOWN.

C,
Maj.

The advance guard comprises the following troops:

Advance guard cavalry:
1st Squadron, 4th Cavalry (less one platoon).
Support:
One platoon, Troop A, 4th Cavalry.
1st Battalion and Machine Gun Company, 3d Infantry.
Reserve:
3d Infantry (less 1st Battalion and Machine Gun Company).
2d Battalion, 6th Light Artillery.
Company A, 1st Engineers.
4th Ambulance Company.

NOTE:—The Monocacy is fordable with difficulty.

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Required:

1. The advance guard order issued by Colonel A (in written form).

2. A tracing showing location of all elements of the outpost (reserve, supports, pickets, sentry squads, cossack posts, patrols, cavalry and detached posts if any).

See Map in Map Pocket—"Map Showing Location of the Elements of an Outpost."

An Approved Solution

First Requirement:

Adv Gd, 1st Div,
Western exit, EMMITSBURG,
1 Oct 19, 12:20 PM.

FIELD ORDERS }
No — }

Maps: 1:2120, Emmitsburg and Taneytown Sheets.

1. From reports of our cavalry and aviators just received a strong hostile force of all arms, strength estimated at a division, is now going into camp in the vicinity of TANEYTOWN. Hostile cavalry holding the crossings of the MONOCACY RIVER from HARNEY south to STULL has prevented our squadron from crossing to the east bank.

   Our division halts for the night and goes into camp, main body west of EMMITSBURG, along EMMITSBURG TURNPIKE.

   1st Sq 4th Cav is leaving detachments at crossings of MONOCACY above mentioned and moving south to attempt to cross to east bank of MONOCACY, when it will reconnoiter toward TANEYTOWN. It will remain out until 6:00 PM when it will join reserve of advance guard.

2. The advance guard will halt for the night and establish the outpost.

3. (a) Maj F, with 2d Bn, MG Co, Stokes Mortar and 37-mm Platoons 3d Inf, and 2 platoons 1st Sq 4th Cav will establish the outpost along the line hill 604—crossroads 421—THOMAS CREEK CHURCH. In case of attack the ridge hills 604—466—464—467 will be defended.

   (b) The advance guard (less troops in par. 3 (a)) will camp as follows:

   3d Inf along west bank of TOMS CREEK, 1st Bn north of 410—422 road, 3d Bn south thereof. Hq Co with 1st Bn.

   1st Bn 6th LA, vicinity hill 421 (2000 yards east of ST. JOSEPH'S COLLEGE.)

   Co A 1st Engrs, in field along creek south of road junction 410.

   1st Sq 4th Cav in woods north of hill 469 (2500 yards southeast of ST. JOSEPH'S COLLEGE.)

   4th Amb Co in field north of 410—422 road and 500 yards east of 410.

   In case of attack organizations will form up in their camps and await orders.

4. Rolling kitchens will join their organizations. The baggage section and filled ration section of F Tns will join their organizations. Upon completion of issue, empty ration wagons will be parked in woods 1000 yards west of CUMPS MILL.

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5. Command post of CO Adv Gd: house at road junction 410.

By order of Col A,

Y,
Operations O.

Verbally to Bn Comdrs Inf and Arty, CO's Hq and MG Cos 3d Inf and 4th Amb Co, Co A 1st Engrs, and Staff. Copy by courier to CO 1st Sq 4th Cav and CG 1st Div.

(D) RECONNAISSANCE IN FORCE—MAP PROBLEM

MAJOR R. O. VAN HORN,
Infantry

Maps: General Map Gettysburg-Antietam, 1-inch equals 10 miles.
Gettysburg-Antietam Map, 1:21120, Gettysburg, Bonneauville, Taneytown and Kingsdale Sheets.

General Situation:

On 10 February, 1920, a Red (northern) and a Blue (southern) army are heavily engaged on the general line of the Pennsylvania—Maryland boundary line. The easternmost elements on the battle line are along Rock Creek and the Monocacy River.

The cavalry of both armies is engaged east of Littlestown. The air forces are equally matched.

Special Situation (Blue):

At daylight 10 February, 1920, the 1st Blue Division, General A, commanding, with Company A, 1st Battalion, Light Tanks, attached, was disposed in army reserve under cover from view as follows:

1st Brigade, ½ mile west of Longville.
2d Brigade, 1 mile east of Longville.
1st Field Artillery Brigade (less 3d Heavy Artillery), near road junction 1 mile northwest of Taneytown.
3d Heavy Artillery, just north of Taneytown.
1st Machine Gun Battalion, near road junction 1 mile northeast of Taneytown.
1st Ammunition Train and 1st Sanitary Train, near road ½ mile south of Taneytown.
Field Trains, Supply Train and Engineer Train, near road about ½ mile east of Crabster.
1st Engineers at Crabster.
1st Field Signal Battalion and Headquarters, 1st Division, at Taneytown.
1st Observation Squadron on temporary landing field about 1 mile west of Crabster.
Company A, 1st Battalion, Light Tanks, ½ mile southeast of Longville.

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Each infantry brigade is covering its own front with outposts as follows:

1st Battalion, 1st Infantry, along general line Pinehill Mill—Piney Creek Church to Angel (inclusive).
1st Battalion, 3d Infantry, from Angel (exclusive), through Lambert—Galt—road junction 546—to road junction 571 (inclusive), with Battery A, 2d Light Artillery, in firing position about 1½ miles east of Longville.

At 10:00 AM, 10 February, 1920, the following message was received by General A:

1st Army,
MOTTERS, MD.,
10 Feb 20, 9:30 AM.

CG, 1st Div,
By courier.

Battle progressing satisfactorily. No further advance will be made today. General east and west line through junction of MARSH and ROCK CREEKS will be held. Attack will be renewed tomorrow morning.

Reports indicate enemy is extending his line to the east of ROCK CREEK, strength and position not known.

Your division, moving into position after dark, will be ready to attack enemy east of ROCK CREEK at daylight 11 Feb 20. Full orders for attack will reach you later.

1st Sq 1st Cav will be at TANEYTOWN at 10:00 AM today and is hereby placed under your orders.

By command of Lieutenant General X,
Y,
C of S.

At 10:00 AM General A's latest information from his outpost is that strong hostile patrols have been encountered on Alloway Creek, about one mile east of Harney, and at a point one mile farther east. These patrols have prevented reconnaissance farther to the north.

Required:

1. Actions taken and orders as actually issued by General A before 3:00 PM 10 February, 1920.
2. Reasons for action taken.

NOTE:—Weather clear and cold. Sunrise, 6:35 AM; sunset, 5:35 PM.

An Approved Solution

First Requirement:

General A was at his headquarters in Taneytown when he received the orders of the army commander at 10:00 AM. He made an estimate of the situation and decided upon the

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action that he would take. He then sent orders to all brigade and separate unit commanders and the division staff officers concerned to report at division headquarters at once for the purpose of receiving orders. He directed that the commanding officer of the 1st Squadron, 1st Cavalry, be given the same instructions as soon as he reported.

General A then gave his decision to the chief of staff, with instructions to have it prepared in the form of an order ready to hand to the unit commanders when they should arrive.

The unit commanders or their representatives all reported as directed. At 10:45 AM General A handed each one a copy of the following field orders:

1st Div,
TANEYTOWN, MD.,
10 Feb 20, 10:45 AM.

FIELD ORDERS }
No — }

Maps: 1:21120, Gettysburg, Bonneauville, Taneytown and Kingsdale Sheets.

1. Enemy reported extending his line east of ROCK CREEK, strength and position not known. Strong hostile patrols along ALLOWAY CREEK about 1 mile east of HARNEY and 1 mile farther east.

   Our army will not advance farther today. General east and west line through junction of MARSH and ROCK CREEKS will be held, right of line in vicinity of creek junction. Our army cavalry is engaging enemy's cavalry east of LITTLESTOWN. Battle progressing satisfactorily. The attack will be resumed tomorrow morning. 1st Div outposts on line PINEHILL MILL—PINEY CREEK CHURCH—ANGEL—LAMBERT—GALT—546—571.

2. A reconnaissance in force will be made as hereinafter indicated.

   Our division will extend right of 1st Blue Army after dark tonight, both brigades in line, 1st Brig on left, ready to attack east of ROCK CREEK at daylight. Orders for this movement later.

3. (a) The CG 1st Brig will order a reconnaissance by 1 battalion of infantry, supported by 1 machine gun company and 1 platoon Co A 1st Bn Light Tanks, to advance north from vicinity of PINEY CREEK CHURCH at 1:00 PM and determine strength and location of any enemy between ROCK CREEK and the line ANGEL—G. HOFFMAN. The present position of the right flank of the 1st Blue Army will also be exactly located. This force will remain in front to assist in covering the advance of the division into position tonight, when orders will be issued for its relief.

   (b) The CG 2d Brig will order a reconnaissance by 1 battalion of infantry, supported by 1 machine gun company and Co A 1st Bn Light Tanks (less 1 plat), to advance north from vicinity of LAMBERT at 1:00 PM and determine strength and position of any enemy east of the line ANGEL—G. HOFFMAN, with particular reference to the location of enemy's east flank. This force will remain in front to assist in covering the advance of the division into position tonight, when orders will be issued for its relief. East boundary of zone of action, hill 542 (1 mile east of LAMBERT)—PALMER.

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(c) The CG 1st FA Brig will designate 1 battery to support each of the reconnaissances ordered. Batteries to be in position at 1:00 PM.
(d) The 1st Sq 1st Cav will move out at once via KINGSDALE, in the general direction of GERMANTOWN. It will locate and determine the strength of any hostile units east of ROCK CREEK, with particular reference to the enemy's easternmost infantry elements. Connection with our army cavalry east of LITTLESTOWN will be gained and maintained. This squadron will remain out until further orders and cover our right flank.
(e) The 1st Obsn Sq will reconnoiter at once the terrain and roads east of ROCK CREEK and north of ALLOWAY CREEK.
(x) 1. Present outposts may be relieved at the discretion of brigade commanders.

4. Field and division trains, no change.
5. (a) Plan of signal communications: no change.
(b) Axis of signal communications: no change.
(c) Command post:
Div: No change.
Division commander's observation post and a forward communication center will be established at LAMBERT by 1:00 PM.

By command of Maj Gen A,

Y,
C of S.

Distribution:

CG 1st Blue Army.	CO 1st Bn Light Tanks.
CG — Corps (right corps, 1st Blue Army).	CO 1st Obsn Sq.
CG — Div (division west of Rock Creek).	CO 1st F Sig Bn.
Div Staff.	CO Tns.
CO 1st Sq 1st Cav.	CO Sn Tn.
	CG's Brigs.
	CO's Outpost Bns.

General A allowed time for the order to be read and then stated a little more in detail that the object of the dispositions ordered was "to learn everything possible, in the short time available, as to the enemy's strength and location, the exact situation of the right elements of the Blue line, and the nature of the terrain in his immediate front, and to cover the movement of the division into position."

All commanders were directed to make such personal reconnaissance as they deemed necessary and to have subordinate commanders do likewise, each with his own special object in view and as fully as the time available permitted. They were further directed to submit, upon completion of the reconnaissance or by 3:00 PM at the latest, any recommendations as to changes in the plan, or for other plans or dispositions considered necessary.

At 11:15 AM General A visited hill 574 (½ mile southeast of Lambert), hill 567 (½ mile southwest of Lambert)

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and a 1st Brigade observation post on a housetop in Longville. He studied the terrain briefly from these points. At 12:30 PM he left Longville and visited the command post of the Blue division on his left for the purpose of obtaining the latest detailed information of the enemy and of the Blue right flank, and to exchange views on further plans of action. (The chief of staff was kept informed of General A's whereabouts at all times.)

At 2:00 PM General A returned, via Taneytown, to the vicinity of Lambert, where a division observation post and a forward communication center had been established, and from which point he could best see the outcome of the reconnaissances that he had ordered. Depending upon developments, General A would either remain at this point or go back to his headquarters in Taneytown.

The information gained through the reconnaissances, in addition to any information obtained from other sources, would enable General A, when the final order for the attack was received from the army, to order his dispositions promptly and with the best likelihood of success.

Second Requirement:

Before extending the Blue right flank and attacking the enemy, more detailed information should be obtained on the following points:

1. The terrain that the division is to occupy and over which it will attack.
2. The exact location and composition of the extreme right elements of the present Blue line.
3. The identification of any hostile units east of Rock Creek, and their exact location.

There is sufficient time available to make a proper reconnaissance. The outpost patrols were unable to reach the desired area because they met larger bodies of hostile troops. A stronger force than patrols might not have this difficulty. Such a force should be strong enough to push away large patrols and, if necessary, to engage the enemy with sufficient determination to develop his position.

A battalion of infantry ought to be able to force the enemy to show considerable strength and more or less of his line of resistance. A smaller force would not be able to exert enough power, a larger force would be extravagant

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in the use of men. Only such part of the battalion as might be actually needed should be engaged.

On account of the front to be covered, two separate penetrations should be effected or attempted. A logical division would be for each brigade to conduct one, using its own troops to reconnoiter terrain over which it will probably fight tomorrow.

In order to permit a withdrawal from action with minimum losses, and for the purpose of developing more fire power with fewer men, a machine gun company should be attached to each reconnoitering battalion. For the same purpose and, in addition, in order to draw some of the enemy's fire from the infantry and onto itself, a battery of artillery to support each battalion would be helpful. Such batteries, from positions within the present outpost lines, would be able to cover by fire the first movements of the infantry. Their subsequent actions would depend upon circumstances. One battery in support of each battalion seems sufficient in the present case. These batteries should be those that normally support the designated infantry battalions, but the artillery brigade commander would order this without specific instructions.

On account of its mobility cavalry can best be used on the flank. The cavalry squadron might be able to get around the enemy's left flank and between it and the Red cavalry. If it did, it could develop, in part at least, the exact location of the enemy's left flank and discover signs of any approaching Red reinforcements.

If tanks were used, they might help to draw hostile artillery fire, thereby facilitating the locating of the enemy's artillery. The assignment of a platoon of five tanks to each reconnoitering battalion would be of assistance in overcoming machine gun resistance and would reduce the casualties of the infantry, while the tanks themselves would present very small targets for the enemy's artillery. Their use, therefore, would probably assist in the accomplishment of the mission, and at little cost.

Notwithstanding the fact that the air forces of both sides are equally matched, every effort should be made to get the full value out of the observation squadron. This is

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a staff matter that is handled by orders from division headquarters to the squadron direct.

For the purpose of obtaining first hand information, General A and his two infantry brigade commanders should each look over the terrain that will probably be crossed by his command. The artillery brigade commander must also acquaint himself with the lie of the land. This personal observation of the ground could well be extended to regimental commanders, but it is believed that in this situation the brigade commanders would order any further personal reconnaissances that they might consider necessary. If time permits, as it does in this situation, the division commander should personally visit the commander of the neighboring division for the purpose of exchanging information with him and to learn his contemplated plan of action. This insures the closest possible co-ordination.

The orders for the reconnaissance would be written to avoid any misunderstanding. The order could be prepared and reproduced in the time that it would take the brigade and other commanders to reach General A.

The terrain rises gradually toward the northeast, the spurs between watersheds running generally northeast and southwest. General A would probably have a more extensive view of the country from the vicinity of Lambert than from any other point within the territory covered by his outpost line. He therefore selects a site for his observation post there.

The observation of General A and the brigade commanders would be most valuable during the time of the actual reconnaissances by the battalions sent forward for that purpose. General A also wants to see the country at once and to study it, both with a view to his movements on the coming night and to discover and order any changes that might be necessary in his present arrangements before the troops get into motion. He would therefore commence his personal observation trip as soon as the conference of commanders was over, and would try to be back from his trip to the adjacent division in time to witness the reconnaissance that he had ordered.

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The battalions that make the reconnaissances should not return at once. They should remain out in front and cover the movement of the division that night until all troops had reached their proper positions. They could then be withdrawn if desired, and all troops would take over the responsibility for security on their immediate fronts.

The time of the relief of the outpost battalions will be governed by the results of the reconnaissances and the positions gained by the reconnoitering battalions, and can best be determined by the brigade commanders. They may safely be charged with this responsibility.

In his field order for the reconnaissance General A should also warn the command of the movement to be made that night, in order to give all concerned as much time as practicable for preparation. No other order for extending the Blue right flank, or for attacking the next morning, should be issued until the order from the army is received, until more is known about the location and composition of the Blue right flank, and until the position and strength of the enemy in the immediate front is learned. To order a movement forward of the whole division before the army order is received or more accurate information of the enemy is secured would be premature.

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CHAPTER IV

Action of Covering Forces

(A-1) ADVANCE GUARDS

MAJOR LAURENCE HALSTEAD,
Infantry

In order to clearly understand the nature of an advance guard action, it is necessary to briefly review the functions of an advance guard.

The advance guard is a detachment of troops, the size and composition of which depends in general, on the size of the main body and the mission on which it is engaged. It also depends in a more limited degree on the nature of the country traversed.

Briefly the duties of the advance guard are:

(a) To guard against surprise.
(b) To furnish information by reconnaissance.
(c) To prevent small bodies of the enemy from annoying the main body.
(d) To check an advance in force long enough to permit the main body to prepare for action.
(e) When the enemy is found on the defensive, to seize a good position and locate his lines.
(f) To be careful not to bring on a general engagement unless the advance guard is authorized to do so.
(g) To remove obstacles, repair roads, and favor in every way the uninterrupted march of the main body.

Considering the advance guard of a large command, it can easily be seen that to be able to perform the seven duties enumerated above, the advance guard would have to consist of several arms. Cavalry is necessary for reconnaissance on account of the speed with which that arm can visit different localities. Also, on occasions an important point may be taken by that arm, and held until the slower moving, but more stubbornly resisting infantry and artillery have had time to arrive. To prevent small bodies from annoying the main body requires the advance guard to have within it cavalry and infantry; and should we add to this

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the very possible requirement of preventing larger composite bodies from delaying the main body, artillery will be needed. To check an advance in force and to seize and hold important ground requires artillery and infantry; and the last duty, that of repairing roads, would require a small detachment of engineers.

For the purpose of speedy communication with other elements of the command a radio section could well be made a part of the advance guard of a large command.

The infantry of the advance guard should include all the infantry auxiliary arms such as machine guns, Stokes and one-pounders, and this should be the case whether the advance guard be that of a large or a small force.

Units of the air service would not as a rule be attached to the advance guard of a division when the division is on the march, but this is not to be taken as an indication that advantage will not be taken of this most excellent means of obtaining information. The method of operation is quite simple. A division may move forward some fifteen miles per day. The airdrome from which air service units operate would not move until the division had made some considerable advance, in fact, the airplanes can operate with airdromes some forty or fifty miles in the rear. During a steady advance the air service operates from the initial airdrome until it becomes apparent that soon the division's progress will leave it more than fifty miles behind. A new location for an airdrome is then found closer to the division and as soon as it is ready to take over the work of aerial reconnaissance it does so and the old airdrome is closed and moved forward also.

One point that has to receive consideration is that while there would not be air service units nor fractions thereof assigned to the advance guard, yet on many occasions it might be necessary for the advance guard commander to receive important information from reconnoitering planes. This would require that close touch be kept with the movements of the advance guard by the air service and that stipulated points in advance where messages could be dropped and where the advance guard commander would

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have cyclists waiting for same from certain times to certain times, would have to be furnished by the advance guard commander to the air service.

The information directed to the division commander would as a matter of course be delivered to his message center—there would be no difficulty about this, as there would be in the continually changing headquarters of the advance guard. A looser method which would not be utilized except as a last resort would be to drop messages near our troops, trusting that they would deliver them to the proper parties. This, however, requires that every officer and man of the advance guard be cautioned to be on the lookout for messages from airplanes and instructed that their duties require that the same be sent to destination.

The method of handling an advance guard in an advance guard action conforms in general to the principles of any other sphere of tactics. The advance guard must operate in absolute accord with the mission of the entire force and consequently the mission of the command should be known to the advance guard commander.

If a line of divisions is assumed to be marching into hostile territory with the idea of occupying some section of the same, as shown in Diagram 1, and the advance guard

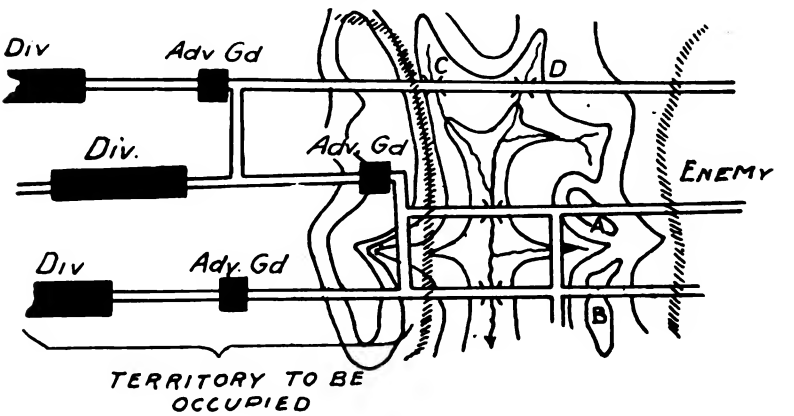

DIAGRAM 1

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of the central and more advanced division comes into contact with the enemy at the stream crossing, the question which confronts the advance guard commander is whether he should attack or not. The answer in this case is "no" because the strip of territory intended to be occupied is now in our hands and an attack on the part of the advance guard, in this case, would be simply one in which the advance guard commander would be running a risk of bringing on a general engagement probably contrary to the wishes of his superiors.

In the foregoing situation, assume that the march is not for the purpose of occupying a certain zone but is an aggressive march to the front for the purpose of meeting the enemy and overpowering him. Just beyond the stream are two small ridges, *A* and *B*. These as a matter of course will be occupied by detachments of the enemy sent forward of his main line on the height beyond. The mission of the advance guard of the leading division is clear. It must push on, force the crossing of the stream, and secure the hill *A*. The advance guard of the right division must force a crossing and get possession of hill *B*. The crossing of the left division is more difficult for it has two streams to cross and no sheltering hill in its front. There must therefore be cooperation extended this division by the advance guards already across and particularly by that of the central division. A plan of passage would be prepared wherein the advance guard of the central division by a demonstration from *A* could assist the passage of the streams at *C* and *D*. The ground at *A* and *B* naturally screens the crossings to the rear, and the seizing of these points causes the advance guards to carry out the principles of sub-paragraph (e).

We may have an occasion where a division is marching along a road from *A* to *B* such, that on arriving at *C* it is ascertained that *B* is already heavily occupied by enemy forces. (See Diagram 2.) The division is ordered to change its direction and march on *D*. As a matter of course the advance guard moves forward to *E*, and there assumes a defensive attitude until the division has made its turn. When this occurs the advance guard, as a rear guard, would follow the column.

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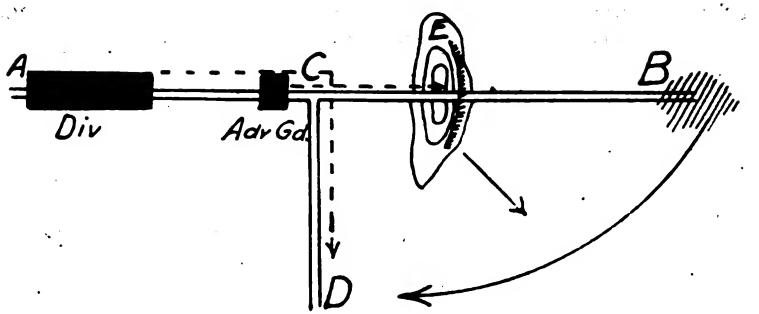

DIAGRAM 2

In the foregoing, assume that while in position at *E* the commander of the advance guard sees some considerable movement of the enemy in the direction of the arrow towards *D*. He must estimate the situation. If the force moving from *B* to *D* is sufficient to cause the division to fail in its mission, whatever that may happen to be, his duty is to attack at once and without orders, trusting that the impetuosity of his attack will disguise his shortage in numbers. If, however, the movement from *B* to *D* is more in the nature of a reconnaissance, then the advance guard commander's duty is again plain: he merely sends out a smaller force to oppose the movement, or should safety permit, he will notify the division commander and let him handle the situation with a detachment from the main body.

In the case where two forces meet on the march we have what is called a rencontre engagement. It should be a surprise to neither side, but whether a surprise or not, it is very doubtful if both commanders can make up their minds in identically the same time. The advantage, in the rencontre engagement, goes to him who first makes up his mind as to what he is going to do, and starts his troops to doing it, other things, such as terrain, being equal. By this procedure he stands a good chance of getting his adversary when the latter is unprepared. In this the co-operation of the advance guard commander is an immense advantage. It is the advance guard commander who is farther to the front, and naturally he would be actually more conversant with conditions than the commander himself. If he knows

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the wishes of the commander and also knows conditions in the front, he need not hesitate but may give to the entire division a proper direction of attack by the action of his advance guard. In Diagram 3, a division is marching

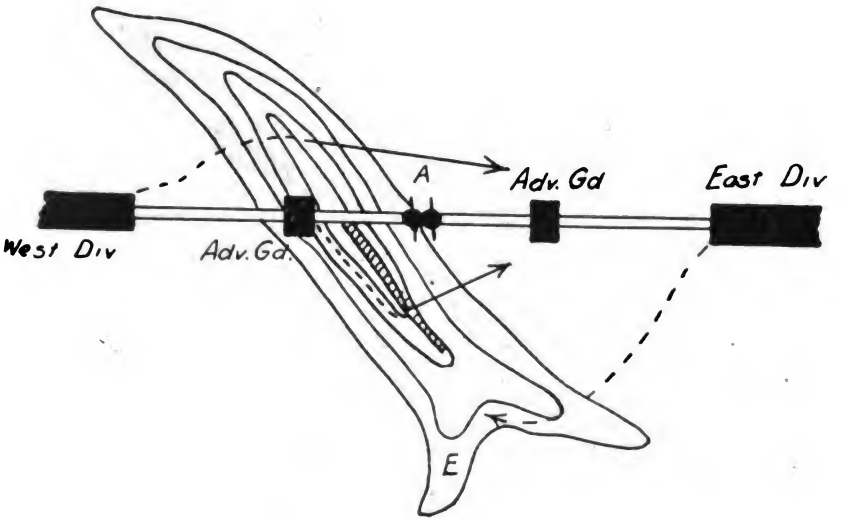

DIAGRAM 3

west and another is marching east. The advance parties meet at *A*. The commander of the advance guard of the western division moves his advance guard to the right, till it is under cover of the hill nearest the enemy advance guard, and makes his thrust as indicated by the arrow. He goes in this direction because he is close to the hill in question, he gets good ground to deploy behind and he would have to move by the flank to move to the left. He gets very close to the enemy and indulges in no lost motion. The main body is forced by his action to deploy to the north of the road, but this is an unmixed benefit, for the main body is closer to the deploying ground forced on it than it is to the ground south of the road. Do what he may the enemy cannot help himself for the advantage rests with the western division. Should the advance guard of the eastern division deploy to the left front, at the same time that the advance guard of the western division goes for the nearest

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high ground to him—his left front—then the natural advantage of the western division has been thrown away by the advance guard commander and both forces will be found to be fighting each other astride the crest. Later the western division may be completely undone by a vigorous advance of the eastern division from the crest at *E*.

Another form of rencontre engagement is shown in Diagram 4. A division marching east meets another march-

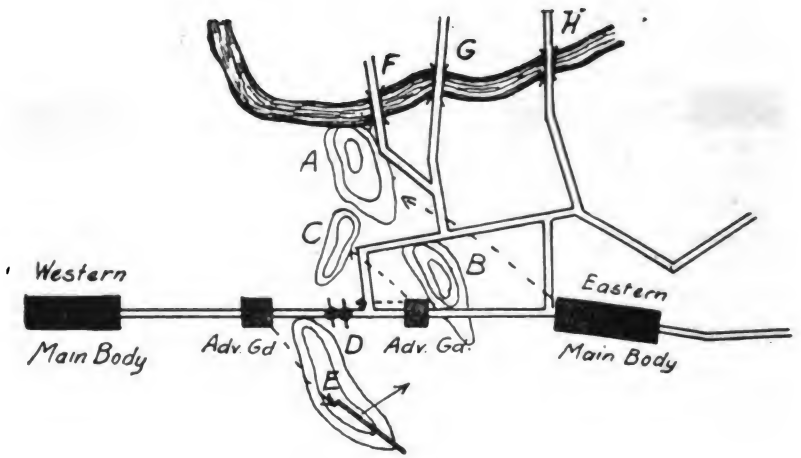

DIAGRAM 4

ing west at *D*. The mission of this western division is to move well forward clearing and opening up the fords at *F*, *G* and *H*. The advance guard commander, on making contact at *D*, forgets the original mission of the division, and instead of deploying straight to the front, or left front, is tempted by the good terrain at *E* to deploy well to the right front as shown on the diagram. Meanwhile the advance guard of the eastern division moves straight to the front, or on *C*, and the main body moves on to the right front occupying the high ground at *A* where with his right secure, he can effectually prevent the western division from accomplishing its mission.

This is a case where the misguided action of the advance guard commander ties down his divisional commander to a certain line of action. The division commander certainly wanted to attack enveloping the hostile right,

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i. e., reaching out with his left towards *A*. If the advance guard commander had driven forward to *B* or possibly even to *C*, this would have been feasible, but when he moved to the right front and the enemy likewise moved to his right front, the opportunity was lost.

The advance guard is a series of echelons each one of which is calculated to prevent the one in its rear from being surprised. The action of the advance guard must therefore in all cases be bold. The timid advance guard commander, who halts to investigate every crossroads or house will wear out the troops in his rear by his ceaseless halts, and will lead to the command's making a half day's march in time allotted for a full day. Boldness is therefore essential—if any one is to be roughly handled it is the advance guard. In advancing toward an enemy in position, the advance guard is not necessarily to bring on an engagement, but on arriving at some favorable locality, drives off the enemy's observing forces and proceeds by small detachments to develop the hostile front. This is done in a manner similar to the development of a route column into an approach march; small fractions of the command break out from the mass and develop or feel the enemy's front, thereby locating him in position as shown in Diagram 5. In this case

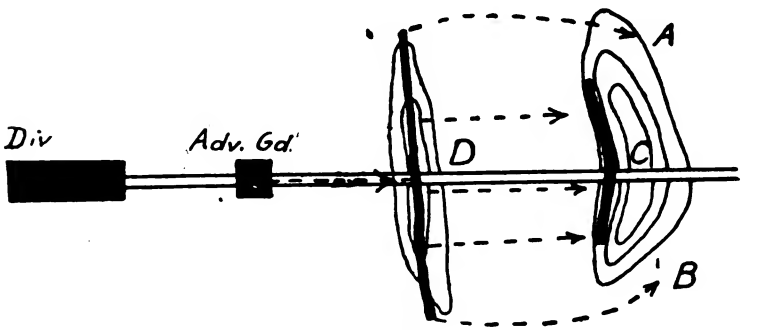

DIAGRAM 5

the advance guard finds its progress stopped by an enemy on the crest at *C*. A position is taken up at *D* and small detachments are sent forward towards the enemy's line. Most of these detachments will be stopped by hostile fire at certain points in front of the hostile front line. The ele-

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ments *A* and *B* are the ones that serve to locate approximately the enemy's flanks. This development by the advance guard is what is meant in sub-paragraphs (b) and (e) by *reconnaissance* and *location of lines*. The work will involve fighting of a minor nature, such only as will be sufficient to deliver the required information. To try to secure the information desired by the use of the whole advance guard, besides being very wasteful, would probably serve to bring on a general engagement prematurely.

Another action which might be forced on an advance guard as well as a main body is a retrograde movement involving a clearing of the friendly front. Assume our division is marching from west to east as indicated in Diagram 6, and at *A* the advance guard runs into a force of the ene-

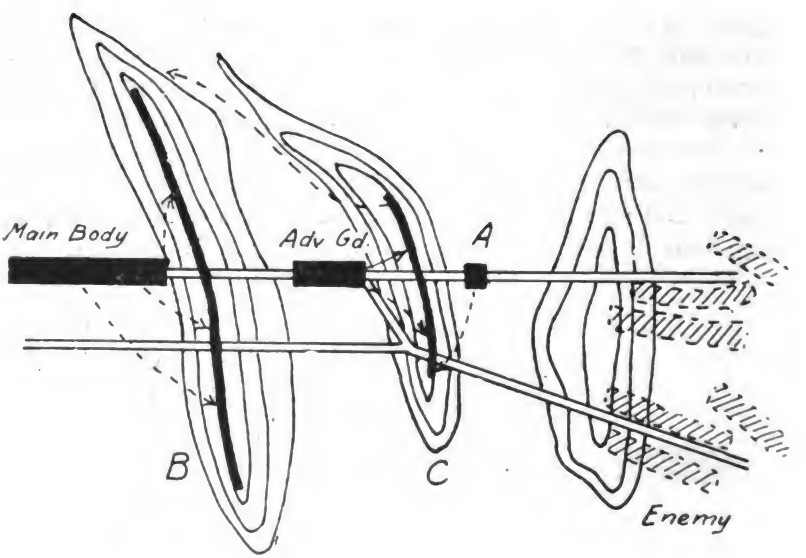

DIAGRAM 6.

my superior to our own already partially deployed and ready to attack.

The division commander decides to take up his main defensive position at *B*, for the position at *C* is not deemed sufficiently large to accommodate the command for one thing, and for another it is farther to the front, will take

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time to reach, and should it be occupied by the division, the advance guard in its front covering the deployment would be liable to be roughly handled. The advance guard commander consequently holds on to what he has already—the height at *C*—and particularly makes his plans for a withdrawal by the left in the direction indicated so as to uncover the main position. He must in this case be particularly careful not to let himself be thrust back on the main body but must clear the flank.

Several cases have been given where the advance guard would be very careful to refrain from attacking; in other words, cases have been cited where it would not bring on an engagement. A case wherein the advance guard is almost *always* justified in attacking is in the pursuit. Here the advance guard and main body move on a broad front—practically an approach formation—ready at all times for action. The enemy is encountered and the elements whose heads bump into the enemy are halted, deploy, and attack. The others not being interfered with pass on, and then, turning to the right and left, accomplish the ruin of the enemy detaining forces by completely enveloping them. Speed and aggressiveness are the rule in this case. The enemy is to be given no time to think it over. The different elements of the advance guards attack or march to the sound of the guns and envelop. (See Diagram 7.)

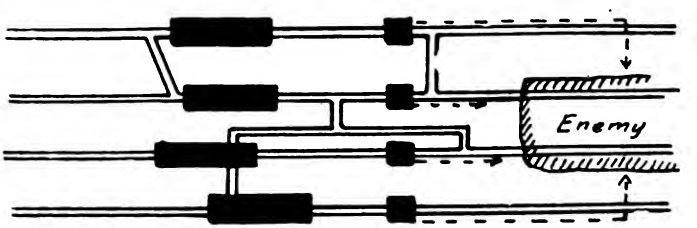

DIAGRAM 7.

An extension of the above principle is to be found in a situation wherein several divisions may be marching to the front on parallel roads. In the foregoing we have assumed

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the different roads to contain elements of the same command pursuing on a broad front. The same diagram will serve to represent several divisions whose mission is of an aggressive nature and under such circumstances that delaying action on the part of the enemy may be expected. Here we must have mutual support amongst the several advance guards. If the two central advance guards are held up, assistance should be rendered by the others, each taking due precautions to protect the head of its main body and at the same time using a portion of its force to strike the enemy in a vulnerable flank. When the work is done the march is resumed, the idea being to expedite the advance of the *whole* and not that of a particular unit.

A case may sometimes occur where the advance guard will be thrown on its own resources, and in this case whether an attack is made or a defensive position taken up is a matter that would have to be decided in accord with circumstances as explained later.

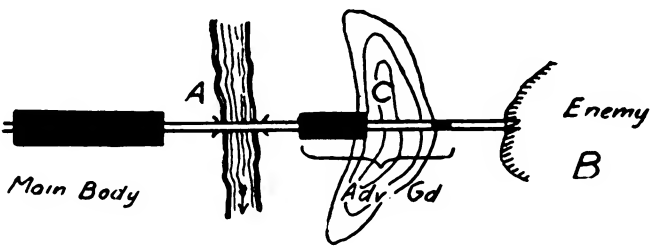

DIAGRAM 8

In Diagram 8, a division is shown marching to the east (right), and after the advance guard has crossed the unfordable river at *A*, some mishap occurs to the bridge rendering it impossible for the main body to cross for several hours. The enemy is located at *B*. The mission of the advance guard is clear. It is to cover the bridge at *A*, make a sort of bridgehead as it were, and keep the enemy from bothering working details. How this mission may be accomplished is another matter, and this depends on the enemy. If the enemy is weak enough to cause one to anticipate success, the advance guard would attack and dispose of him

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in one action, thereby clearing the way for the progress of the main body later on—one of the duties of the advance guard, be it remembered. Also in support of this plan is the time element. The main body is being delayed as it is, and rather than have the advance guard also remain idle on the left shore of the stream, it could be just as well employed by performing one of its duties in the meantime.

In case the enemy were of such strength as to cause some doubt to be entertained as to the ability of the advance guard to overcome him unaided, it would not do for the advance guard to attack excepting only in an extremity. To do so precipitates an action in which the advance guard fights with a river to its back, and under the odds of combating superior forces. The line of action of the advance guard is clear in this also. It is a defensive position on the natural bridgehead at *C*. Here it may hold out for several hours, or even days, until the main body makes its crossing. By assuming a defensive position the time of waiting is increased, for the enemy will take time to develop the same.

Another form of the foregoing situation would be one which would call on the advance guard commander to take up a position in readiness. A position in readiness is one called for when the situation in so far as it can be estimated, relative to the enemy and our own troops, is colored by such uncertainties that a blow in any particular direction might be one in the empty air, or a defensive position taken up might cover nothing at all, or run a great possibility of never being used.

The commander of the advance guard in such a situation is necessarily in considerable doubt as to just what his line of action is to be. He accordingly assembles his troops and gets them in such a situation that he will be enabled to use them in any direction. He must be able to deploy, and form upon one or more positions, and must be able to move his command, in mass formation, for short distances to another point. It frequently is a preliminary to taking up a defensive position.

Assume that we have a division moving east towards *A* as shown in Diagram 9 and that the advance guard is across the unfordable river at *B*, when word is received that the

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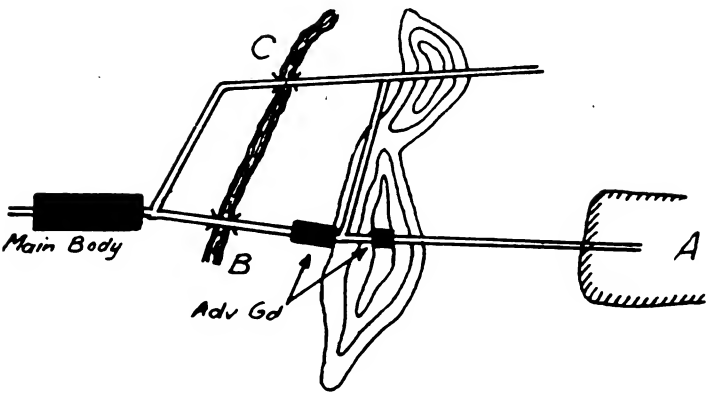

DIAGRAM 9

bridge is not practicable for the division and the division commander is at present undecided as to whether he will move to the bridge at *C* and effect his crossing there, or will wait where he is till the bridge at *B* is repaired. Assume also that the advance guard commander has received word of a large force of the enemy, superior to his advance guard and located at *A*, but is unaware of the action of this force. His duty is to cover the crossing of the main body at *B* or *C*. He is already at *B*. To move to *C* would uncover the bridge at *B* and would not be warranted as long as the enemy is at *A*. Should the enemy move towards *C*, the advance guard must move to the heights east of *C*. A defensive position at the crest east of *B* is not in order, for at the present time the action of the enemy is so uncertain that such a solution of the problem would lend itself to the enemy's advantage should he move on *C*. The advance guard commander would have to gather in his forces and move them, perhaps too late, to the hill east of *C*. A position in readiness west of the crest at *B* is the proper solution coupled, however, with intense patrolling towards *A* and also on the road for several miles east of *C*. Reconnaissance of routes towards the crest of *C* and reconnaissance of positions both on the hills east of *B* and *C* and intense reconnaissance towards enemy at *A* are necessary.

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Artillery of the advance guard should in this case be north of the road so as to be the first in position at *C* for the artillery is the long distance delaying arm and it is important in either case that the possibilities of this arm in either position be taken full advantage of. In case of a move from *B* to *C* the masses would be marched across country so far as possible unless the distance were so great as to prohibit this method.

Another and very simple phase of this situation would be when a main body is delayed for say ten hours. The advance guard is to the front several miles, it having continued on its march for some time prior to receiving word of the halt of the main body. The enemy is known to be at *A* (Diagram 10), but his action and dispositions are not

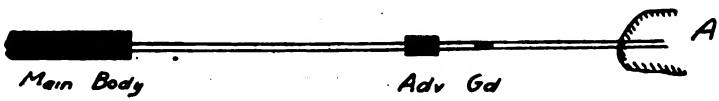

DIAGRAM 10.

known. It is shorter in distance from the advance guard to *A* than it is from the advance guard to the main body. The advance guard would hardly be justified in retiring only to march forward again the next day. It would certainly not be justified in moving to the front. A defensive position might be taken up but perhaps would never be used. A position in readiness is again the one that comes nearer filling all conditions than any other. In it the commander may easily resume his march or pass into a defensive position should occasion demand.

The forming up of the advance guard for attack in general may be said to involve the same principles as any other body of troops, with, however, this exception. The advance guard will, in almost all cases, be called on to attack quickly. For this reason if for no other the advance guard marches in an alert formation. There is a detachment of cavalry ahead to guard against surprise. Next the infantry marches in successive echelons. This arm offers

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great aggressive strength as well as great resistance. With the infantry are machine guns, Stokes and one-pounders, generally in the order named, for that in general will be the order in which they will be used. Farther in the rear comes the field artillery, not that it should not be used early in the game, but because it can generally be counted on to get into position at the proper time by taking up an increased gait, or on account of its long range may go into action near where it is when contact is made. The road distance that the artillery is kept to the rear is filled with slower moving infantry. Artillery officers to the front use time necessary for the slow moving infantry to get out of the way in reconnaissance for battery positions and preparation of firing data.

It is stated in the *Infantry Drill Regulations* that when but slight penetration is desired a command need not be echeloned greatly in depth. When deep penetration is desired the command is distributed in depth. The reason for this principle is clear. In each battalion there is just "so much fight" and no more. When this unit of fight is used up the battalion must be replaced by another one or no progress will be made. Each battalion can thus be said to be capable of making a certain number, say "n" meters of advance prior to its exhaustion. It is clear then that three battalions in line as shown at *A* in Diagram 11 will advance "n" meters only, whereas three battalions in column as shown at *B* will advance 3 "n" meters. When the leading battalion has used up its unit of fight and has gone forward its "n" meters, its place will be taken by the second battalion which likewise moves forward as far as it can, and in its turn is replaced by the third battalion in column. This and the fact that rear echelons may be diverted to other objectives is about all there is to distribution in depth.

The principle holds true with the advance guard as well as with other commands. If the advance guard is to make a vigorous push to the front, gaining ground well in advance, it adopts a formation with some depth to it. A concrete case would be when some strongly held point had to be taken so as to form of it a defensive point in a line to be occupied later by the main body. (See Diagram 12.) It is, however, deemed pertinent to state here, that this use

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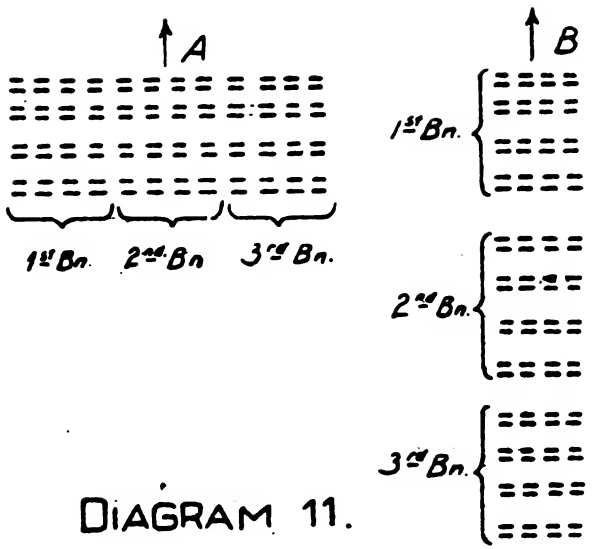

DIAGRAM 11.

of the advance guard will generally be exceptional. The advance guard in the general case will attack on a broad front for two reasons. (1) The attack on a broad front clears up the situation. It is the preliminary attack that

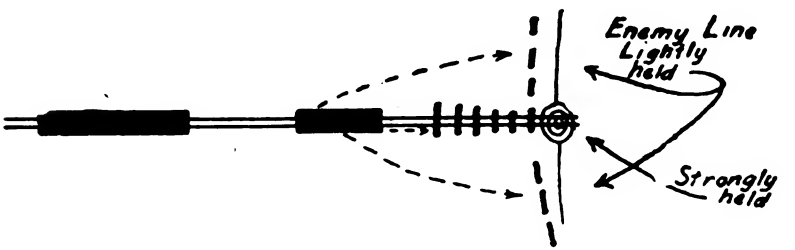

DIAGRAM 12

gives light to the commander in rear as to the real line of the enemy. (2) The broad front covers up the maneuvers of the main body, and great penetration is generally not sought. What is desired is slight penetration—only enough to secure advantageous ground for the deployment of the main body. This would generally be better attained by a broad front than a narrow drive at one portion of the

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enemy's line. It leads to a mixing of units but that cannot be helped—a remedy exists in that when the real attack has been launched and a passage of lines effected the advance guard can be assembled and reorganized for use as a reserve.

(A-2) AN ADVANCE GUARD ACTION—MAP PROBLEM

MAJOR LAURENCE HALSTEAD,
Infantry

Map: Gettysburg-Antietam General Map, 1"=10 miles, and 1:21120, Bonneauville and Kingsdale Sheets.

General Situation:

A Blue invading army, after defeating a Red army on the line of the Conewago Creek, is pursuing in the direction of Baltimore. The covering detachments of both forces are in close contact.

Special Situation (Blue):

The 1st Blue Division operating on the extreme right of the Blue army camped for the night of May 1-2, at Whitehall and the vicinity of that place. Early on the morning of the 2d, the division started on the march via Littlestown and Silver Run under orders to strike without delay the Red left at Union Mills.

The 1st Infantry, Troops A and B, 1st Cavalry, the 1st Battalion, 1st Field Artillery, and the 4th Ambulance Company form the advance guard and precede the main body at one and one-half miles. Advance guard formation: Advance guard cavalry: Troops A and B (less one platoon); support: 1st Battalion, 1st Infantry, and 1st Platoon, Troop A, preceding the reserve by 800 yards; reserve in order of march: 1st Infantry (less 1st Battalion and field trains), 1st Battalion, 1st Field Artillery (less field train), 4th Ambulance Company, field trains. The division headquarters is at Whitehall S. H.

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During the march several messages were received from the advance guard cavalry reporting the defeat of a hostile troop south of Georgetown, and the discovery of a Red column of all arms, estimated at three regiments of infantry with some artillery, marching north from Union Mills via Silver Run.

Upon reaching the creek south of hill 726 (one-half mile southeast Mt. Pleasant S. H.) at 7:55 AM, Colonel A at the head of the reserve heard firing to the south and saw the tail of the support move rapidly to the left front towards the cornfield east of 712. At the same time he received the following messages:

Adv Gd Cav,
RJ 704, West of PLEASANT GROVE S. H.,
2 May, 7:45 AM.

Comdr Adv Gd.

Infantry point Red column, passed SILVER RUN CREEK at 7:20 AM. Remain here in observation.

Y, Capt.

1st Plat Tr A, hill 792,
East of PLEASANT GROVE S. H.,
2 May, 7:46 AM.

Comdr Support,

Head Red column infantry and artillery marching north reached SILVER RUN CREEK at 7:45 AM. Remain here in observation.

X, Lieut.

Colonel A immediately forwarded these messages to division headquarters, and, accompanied by his staff and the artillery battalion commander, moved rapidly to the front. Upon arrival at the spur at crossroads 712 at 8:05 AM, he sees two companies of the support deployed across the road at the southern edge of the group of houses at 741 and engaged in a heavy fire fight with a Red line deployed along the farm road and woods to the south. By this time the head of the reserve has taken up the approach formation and has arrived at the southern edge of the corn field south of 629, extended on a frontage from the north and south fence 350 yards west of 629 to the north and south fence 260 yards east of that point. Colonel A realizes that the Red fire is growing superior to that of the Blue support.

Required:

(1) Colonel A's decision and reasons therefor.

(2) Colonel A's orders, exactly as given and also any messages he may send.

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Solution

Colonel A decides to deploy a portion of his force, at least, immediately so as to extend the line of the support to the west. The 2d Battalion which has already taken up the "approach formation" is extended over a front of about six hundred yards and is slowly moving south. This battalion can be directed to march so as to pass 712 on its left and deploy and occupy the ridge which extends to the west from 741. Reconnaissance to the south by this battalion through the woods on their right would be ordered. An endeavor would be made by this battalion to secure the far edge of the woods above referred to so as to use same for machine gun control of the roads and road junctions to the south. The machine gun company to be divided—one platoon supporting the 1st Battalion and one the 2d Battalion. The third platoon to be kept in reserve at 693. The artillery battalion is to go into action from the north of 726 hill and to open fire on the north edge of the woods along which the enemy has his line at the earliest possible moment.

Reasons

Colonel A's mission is absolutely dependent on the mission of the 1st Division. The 1st Division is ordered to proceed south and drive home an attack on the enemy's left at Union Mills *without delay*. The advance guard is expected to cover the march, seize important points, develop the hostile plan of action and several other duties which may not necessarily be discussed here.

A rencontre engagement might have been expected in this case. The enemy realizing that a division had been detailed to strike his left would be acting with good common sense were he to send a smaller force to the north to detain the 1st Division, while he himself made the necessary dispositions to meet the attack. It is the duty of the advance guard to seize a position under cover of which the main body or part of the same may deploy, i. e., *to seize an important point.* This demands, on the part of the advance guard commander, a mental plan framed step by step to meet the constant changes in terrain and the information of the

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enemy. This plan would be based on forethought and a consideration of the terrain well in advance and not limited to that in the immediate vicinity of the troops.

Colonel A has had early warning of the approach of the Red column. After leaving Littlestown he plans successively the occupation of the 726 ridge, or the Pleasant Grove S. H. ridge as one or the other will be needed to cover the deployment of the main body, should the enemy be in position sufficiently near them.

The information received at 7:55 AM, clearly indicates a meeting on Pleasant Grove S. H. ridge and a fight for its possession. An analysis of this information coupled with the situation presented on Colonel A's reaching 712 discloses the fact that the Reds have gained the ridge in force and have the advantage in deployment. Judging from the reports sent in by the cavalry at 8:05 AM, the hostile leading elements would have no difficulty in being deployed at the present position of their firing line; and the head of their main body could be passing the farm houses just south of 727. At the same time the head of the main body of the 1st Division would be approaching Grawmer or would be about one hour and thirty minutes away.

With this situation in mind Colonel A must decide at once whether he will retire on his main body, attack the Reds in his front, or hold to and strengthen his present position.

To retire plays into the Red's hands. It gives them the Pleasant Grove S. H. ridge and permits them, unmolested, to organize it for defense. In the time it would take for the division to arrive, the place could in all probability be so well organized that the deployment and attack of the entire 1st Division would be necessary to dislodge them and drive them back in such condition of rout and disorder as would permit the 1st Division to get at the hostile left at Union Mills. Delayed the 1st Division undoubtedly will be, for the Reds are ahead in the matter of deployment, but it is the business of the advance guard commander to operate with such skill that the division's delay is cut down to the least time interval possible.

To attack at once may accomplish one of two things. The Reds will have to hold their present position with at

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least equal strength, or they will have to launch a superior force against Colonel A's attack. If the Blue 1st Division were sufficiently near to permit it to send another regiment with them into action and get more Blue artillery at work at once the attack would be an advantageous action for the Blues, and indeed this will ultimately have to be the Blue form of action if the mission of the 1st Division is to be carried out.

Colonel A, however, knows that the Red force is growing superior moment by moment and already has the lead on him in having more of a force deployed than he has. He also knows that the Red main body is or could be perilously close, for one must note that the distance from the farm houses south of 727 (the point where the head of the Red main body can be) is but 650 yards from the Red firing line whereas the head of the Blue reserve in "approach formation" is over one thousand yards from the Blue firing line. It is therefore apparent to Colonel A that do what he may—use up all the men he has by placing them on the line as rapidly as they can be gotten there, the Red force can continually have more men in the fight than he can. Under these circumstances an attack by Colonel A is uncertain as to its results. Smaller forces do not usually attack larger ones successfully and although the difference in *morale* may be allowed to weigh to some extent in favor of a Blue attack, on account of the recent Red retreat, yet the Red force is much superior to Colonel A's advance guard and moreover, it is only reasonable to suppose that the Red commander has sent out a body of his *best troops* to handle the important business of delaying the 1st Division.

It might be that an attack by Colonel A in force would lead to a disastrous repulse, thrusting his command back on the head of the main body and thereby interfering with its proper action.

Nevertheless Colonel A cannot permit the Red forces to carry out *undisturbed* a deployment and a possible advance against the Blue division. The Blue 1st Division is bound to get into action today or tomorrow if it is to carry out the original mission. It must attack with enough of its force augmenting the advance guard to insure a speedy

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overwhelming of the Red force. Colonel A's duty is therefore to look at the situation from the standpoint of the division commander. The division commander would desire the advance guard to occupy a position, such as would cover the deployment of such part of the 1st Division as will insure the defeat of the Red force. The Red force must be held to its present position to gain time for the Blue deployment and to insure the Blues the initiative in the selection of the direction of attack. The active presence of the Blue advance guard at 741 may accomplish this together with harassing fire of artillery on the road south of 727 and the country road south of hill 767. If this does not suffice Colonel A is forced to attack.

The position now held by the Blue support does not cover the south slope of Pleasant Grove S. H. ridge, and consequently except for artillery fire the Red main body is permitted to move, and prepare its attack under cover. On the other hand the hill at 741 and the ridge to the west, together with the ridge to the west of 712 and hill 711, all cover the valley of Piney Creek, and consequently these would mask the deployment of the division. In addition to the foregoing this position gives a strong foothold on the main ridge. Colonel A *cannot afford to retire and give it up;* the position must be held in order to allow the 1st Division to carry out its part in the general plan. If the Reds can be enticed into attacking with superior numbers so much the better for they will be well involved when the main body strikes them.

From the foregoing it is evident that Colonel A has a double task to perform. He must hold the 741 ridge to the west, a frontage of at least 1500 yards, thereby pinning at least his own strength in Reds to this front, and he must harass the Reds in their deployment. At the present moment he cannot decide on his ultimate course of action. He may be forced to attack. He may be attacked by superior numbers. He may be allowed to stay on the ridge carrying on a fire fight until the division settles matters by its action. If the Reds cease to increase their strength to the south, thereby showing that they are engaged in some activity elsewhere or are holding out large reserves Colonel A must

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attack and force their hand. The present outlook shows a growing strength of the Red lines and as long as this continues Colonel A will play the part of a containing force in the 741 position. In the meantime reconnaissance should furnish sufficient data for a planned attack.

It might be argued that the aggressive spirit, which should be inherent in a pursuing force, prompts an immediate attack by the Blue advance guard. The accurate knowledge of the nearness of the Red main body, its numbers and the fact that already it has the lead warrants more deliberate steps on the part of Colonel A's advance guard than would be justified in the case of the Blue main body.

The deployment along the spur west from 741, inclusive, and extending to include the woods at 365.6—734.9 meets the requirement of holding the ridge, and places the advance guard in a suitable position for an attack to the south. The cover offered by the terrain, the fact that there are friendly troops to the east, and the fact that a Blue attack against the Red right tends to drive the latter away from his natural line of retreat, all combine to cause Colonel A to be certain that the Blue main body will so deploy as to drive its attack against the Red right. Colonel A, however, must not so act as to commit his division commander to this line of action, yet he may go so far as to consider his right as the exposed flank and echelon his reserve battalion in rear of that flank. Hill 711, the two woods, and ravines to the south and hill 744 indicate a possible line of action of the reserve against the Red left.

This is not an occasion for a written order. The orders would be verbal and individually issued to commanders.

ORDERS

At 8:05 AM, Colonel A signals for the reserve to halt and has the commanders of the 2d and 3d Battalions join him. He also sends for the commanders of the machine gun company, Stokes and one-pounders. On their arrival he issues the following order:

> "A hostile column of all arms is marching north on this road. You can see our support (the 1st Battalion) engaged with the Red leading elements who are located in the woods to the south. Major C, your 2d Battalion will extend the line of the support

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to the west. A platoon of the machine gun company, one one-pounder, and two Stokes mortars will be attached to your battalion. Deploy at once along that ridge (indicating the ridge extending west from 741 and about 400 yards to the south). Your sector is from this road (the 712—Pleasant Grove S. H. road) to the west to include those woods (indicating the woods 600 yards to the southwest). On arriving in position await orders. Send a strong patrol to locate hostile left and movements of enemy south of Pleasant Grove S. H. woods.

"Lieutenant M (Stokes), assign two Stokes to the 1st Battalion and two to the 2d Battalion. Hold remainder off the road and near those houses (indicating the houses 1100 yards to the north).

"Lieutenant N (one-pounders), assign one one-pounder to the 2d Battalion to report to same at road junction 300 yards west of here, and two to the 1st Battalion to report to battalion commander in or near those houses (indicating the houses at 741).

"Major D (3d Battalion), move your battalion as a reserve to the woods at 711 hill (indicating direction) and there await orders. Send a section under a competent officer via the northern edge of those woods (indicating the woods east of 741) to locate hostile right and any Red movement to the east.

"Major E (artillery battalion), have your battalion go into action to the north of 726 hill. Open fire at once on the enemy along the woods to the south. Also open harassing fire on the road at 727, both south and north of that place, and on the country road south of the woods.

"Combat wagons will be emptied and await orders off the road.

"Surgeon, hold first aid station east of 693 and at house 400 yards to the west of this point.

"Reports to me here."

At 8:10 AM. To a staff officer:

"Ride back, halt trains and have them as well as any other elements of our command not on the move to the front, clear the road at once."

At 8:10 AM. To a staff officer:

"Inform Major B (1st Battalion) of above orders. Direct him to hold his present position and to push reconnaissance south via the creek and woods to the east."

At 8:12 AM, Colonel A sends the following messages:

Adv Gd, 1st Div,
CR 712,
2 May, 8:12 AM.

MESSAGE NO.—
How sent: motorcyclist.
CG, 1st Div.

Reds in increasing force, hold PLEASANT GROVE S. H. woods. Our advance guard deploying west from 741. I will hold Reds to their present position.

A, Colonel.

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Adv Gd, 1st Div,
CR 712,
2 May, 8:12 AM.

MESSAGE No.—
How sent: motorcyclist.
Comdrs Trs A and B, and 1st Plat Tr A.

Red advance elements hold PLEASANT GROVE S. H. woods. Use every effort to determine without delay the movements of the enemy main body. Messages to 712. Acknowledge.

A, Colonel.

(A-3) AN ADVANCE GUARD ACTION—MAP PROBLEM

MAJOR LAURENCE HALSTEAD,
Infantry

Maps: Gettysburg-Antietam, 1:21120, Bonneauville and Kingsdale Sheets.

General Situation:

A Red army in friendly territory, is engaged in organizing for defense the line of heights north of Silver Run; such defenses as have been constructed run generally along the line 369.0—734.0; 367.5—733.5; 366.0—733.0; 364.1—732.6; 362.0—731.6.

A Blue army of several divisions on parallel roads is on the move to the north to attack the Red army at as early a date as practicable, the governing idea being that the Red forces must be driven back prior to their having an opportunity to become well "dug in" north of Silver Run.

Special Situation (Blue):

The 1st Blue Division is on the march north via the road located by the following co-ordinates, 365.8—726.1; 366.6—727.5; 365.6—728.1; 365.4—729.3; 365.7—731.3. It is known that friendly divisions are practically abreast and marching on the 511—550—466 road and the 637—681—513 road, which lie to the west and east respectively. The advance guard of the 1st Division consists of the following troops: 1st Squadron, 1st Cavalry; 1st Infantry; one platoon, Light Tanks; 1st Battalion, 1st Light Artillery; Company A, 1st Engineers; 4th Ambulance Company (horse);

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1st Field Hospital (horse) and field trains, the latter being in rear of advance guard. The division follows the advance guard at one and one-half miles. During the march to the north which has taken several days, small parties of enemy cavalry have resisted the Blue advance. Aerial reconnaissance has divulged the fact that the Reds are organizing the ground north of Silver Run (the creek) and that at some points have pushed forward weak detachments apparently to serve as delaying forces. At 9:00 AM, the point of the advance guard has arrived at the road junction 700 yards north of 623. The advance guard commander is at the head of the advance party which is on hill 651. An officer reports from the cavalry squadron with the following information:

"About one and one-half hours ago our point about 600 yards north of here encountered heavy rifle and machine gun fire from the crossroads at 655. The point sought cover in the woods 100 yards to the southeast. The squadron was halted in rear of 651 hill. A troop was sent to the northeast through the woods to reconnoiter via hill 683, and another troop was dispatched to the northwest to reconnoiter via the small hill 600 yards northwest of 651. Reports from both of these troops have just been received. The troop that went via hill 683 reports that it is on hill 683 and has sent patrols towards North 684 hill and to the northwest, and encountered fire from both places. Enemy appears strongly posted on North 684 hill. A patrol sent east of North 684 hill reached the 722—684 road without being fired on. The troop that went to the northwest reports from the south slope of the hill 600 yards northwest of 651 that hill 647 is clear of enemy and that he has a patrol on it. A patrol went towards Green Valley S. H. and returned a messenger stating that the patrol has crossed the saddle northeast of 647 hill without incident and that the hostile line from this saddle appeared to be thinly held. Patrols sent from the north edge of the woods northwest of hill 651 received some fire from west of 655 as soon as they left the woods."

Enemy artillery fire from the north is being directed on the north edge of the woods east of 651 and on the road north of hill 651. Artillery and musketry are heard from the west.

Required:

(1) Colonel A's estimate of the situation.

(2) Colonel A's orders.

NOTE:—In this problem Silver Run refers to the creek of that name, except where otherwise stated.

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TABLE OF DISTANCES

Advance guard cavalry:	
1st Squadron, 1st Cavalry.	
1 radio section.	
Point:	
1 platoon, Company A	30 yds.
Distance	250
Advance party:	
Company A, 1st Infantry (less one platoon)	95
Distance	500
Support:	
1st Battalion, 1st Infantry (less Company A)	520
Distance	800
Reserve in order of march:	
One radio section (interval between support and reserve).	
1st Infantry (less 1st Battalion and field trains)	2320
2d Battalion	
Machine Gun Company	
Headquarters Company	
3d Battalion	
1st Battalion, 1st Light Artillery (less field train)	1650
Company A, 1st Engineers	225
4th Ambulance Company (horse)	340
4th Field Hospital Company (horse)	205
Field trains	1500

Solution

The estimate of the situation.

In the solution of a problem one of the first things to do is to ascertain where the various elements of the command are. The position of the advance party is given in the problem itself. It is on 651 hill. The point should be about 250 yards ahead of the advance party and as the road to the north of hill 651 is under artillery fire it may be assumed that the platoon commander has placed his men in what shelter he could find in the woods to the north.

Assuming the advance party as Company A, 1st Infantry (less one platoon—the point), and the tail of the same at the wire fence which crosses hill 651 we have a base on which to work in order to ascertain approximately, the position of the other elements of the command. The support should come about 500 yards in rear of the advance party. It would consist of the 1st Battalion, 1st Infantry (less Company A). The road length of the battalion with its combat trains, less a company, is 520 yards. The head of

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the support would therefore be at the point where the 540 foot contour crosses the road 220 yards south of 623. As the tail of the support is 520 yards farther south it will be found just north of 496. A distance of 800 yards separates the support from the reserve. This places the head of the reserve—the leading element of the 2d Battalion, 1st Infantry—at the point where the lane leads off to the east 700 yards north of 714.

The length of the 1st Infantry (less one battalion and field trains) is 2320 yards, so the tail of the infantry is at the road junction south of 688 hill. The head of the artillery is near this same road junction and the tail some 1650 yards in rear, followed by the engineer company, ambulance company, field hospital company and trains in the order named.

The tanks are five in number and of the American light tank type. They would be well in the advance for Colonel A would have been considering their possible use while on the march to the north. He further should have been fortified in his idea of having them in the advance on acount of the fact that aerial reconnaissance has indicated to him the possibility of his meeting with a delaying detachment of Reds south of Silver Run. Two tanks, one armed with the one-pounder, and one a machine gun tank, are between the point and the advance party. They have taken shelter south of the woods on the country road that leads to the west just north of hill 651. They would, however, remain close to the main road and ready to advance on receipt of orders. The remaining three tanks are between the advance party and the support in the road cut at 623. Knowing now the locations of all of Colonel A's command the next question is one that Colonel A would have to ask himself. "What is my mission?" Tactical principles here help him in arriving at a logical conclusion as to what he can do, and often also elimination is a great aid as by it one discards various projects and reduces one's line of action to two or three from which a reasonable selection can be made. In this particular case, however, there are but few courses of action open.

Can Colonel A halt in place and await developments? The answer to this is obviously negative. He was sent out

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as an advance guard to do certain work, and given tools to do the work with; so halting and awaiting developments on the first real contact is hardly in order. Can Colonel A halt and wait for the division to arrive nearer so as to obtain aid from it? The answer is again negative, for again it must be remembered that one of the duties of the advance guard is to keep on to the front when the mission is aggressive and not to halt and call to the rear for aid on every contact with the enemy.

This, however, must not be taken as a general rule for there may often be cases where the advance guard would halt and await the main body. In this case the mission of this division is aggressive and the desire of the army commander is to get not only the ground south of Silver Run, but also the position to the north thereof. Colonel A would therefore be amply justified in rejecting the proposition to halt and await the division.

Marching by, if such action were possible, would only leave the division to perform the work of the advance guard and there are left only the projects of an attack or a defensive position. The defensive position is readily discarded because Colonel A would realize that he could hardly get into it before the division would arrive and he would then have to take up more active measures by order.

The mission of any advance guard is to secure suitable ground for the deployment of the main body. If the enemy is allowed to remain on the ridge south of Silver Run it becomes apparent that the division will have to deploy and start its attack some 1500 yards from the hostile main line. The ridge south of Silver Run is undoubtedly the covering ridge that will be demanded by the division commander for use in launching his attack against the heights to the north. The position of the Red force to the north is formidable enough as it is, and even from the ridge south of Silver Run there is involved quite a long advance for the division over comparatively open country. The hill at North 684 and the woods north of 655 and 684 must be secured and consequently Colonel A may regard his mission as definitely fixed: *to secure the height south of Silver Run,* meaning of course that part which immediately concerns him—the sec-

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tion on which the Reds have located their advance detachment. The firing to the west would indicate that one or more of the divisions to the west had met similar difficulties.

Prior to issuing the order for the attack Colonel A has to consider the various conditions surrounding the case. The location of the enemy's artillery is, as is usually the case, not known. At the present time he appears to be engaged in shelling the north edge of the woods east of 651 hill and the road to the north of that place. No definite orders can be given to our artillery covering fire on any particular artillery target. General instructions would therefore have to be issued covering simply the action of this arm by directing that it support the attack, which should be sufficient to indicate to the commander of the artillery battalion the necessity for immediate artillery preparation fire on the hostile line. The artillery commander of his own volition would open fire on any artillery target that he may locate later on.

For the advancing of the infantry to a "jump off" position Colonel A has three natural lines of approach. One is via the woods to the east of 651 hill, which woods extend from Arter's Mill along the hollow to the north to within 450 yards of the enemy's position. It is to be noted that movement through this woods would be expedited to some considerable extent by the road which leads to the north through two-thirds of its length.

Another line of approach is via the east slope of the 683, 684, 682 ridge. By using this route troops could be brought up almost to the road junction 300 yards southeast of the 4 of North 684 hill, and an attack launched against the hostile left, which Colonel A would infer from reports of the cavalry rests on North 684 hill. An element of danger enters in this method of attack in that the right flank would be very exposed. The direction of troops attacking from the road junction mentioned above would necessarily be about northwest, and this would cause our right to extend in the direction of 722 hill. A troop, however, is already located in the vicinity of this flank and this troop may be augmented and used as a covering detachment.

A third line of approach exists via the southwest slope of 651 hill and the woods to the northwest of that hill. By

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this line of approach troops may be led to a "jump off" 350 yards from the enemy's line at the closest. By using the protection of the small knoll northwest of this woods and having the right of the line rest on the main road at the road junction 575 yards south of 655 a frontage of about 500 yards can be obtained.

Colonel A has to decide whether he shall use one, two, or all three of these different lines of approach. He arrives at a decision by the following form of reasoning: To use the left line only, neglects two-thirds of the hostile front, for the enemy's front would be assumed by Colonel A to extend from the North 684 hill to the west along the Green Valley S. H.—Silver Run road via 655, to a point about 800 yards west of 655. The same is true of any other line of approach considered by itself. The central line of approach would lead the command against the enemy's center, and neglect his flanks, and the eastern route would handle only that portion of the enemy line located on North 684 hill. Colonel A is seeking a position sufficient in frontage for a division and as the ground occupied by the enemy seems about of that extent, he would decide to attack the entire front. He is further impelled to do this by the fact that his information leads him to believe that the detachment in his front is weak and a sharp decisive thrust all along the line will cause it to retire.

The frontage is broad but it must be remembered that an advance guard may often have to attack on a broad front, and while it would seem risky for an independent force to attempt to cover so wide a frontage, the fact that each moment brings nearer the friendly main body justifies a wide front in this case. The decision would be to use each of the three lines of approach open to Colonel A and the question that he now has to settle is the number and what troops he will use to each line of approach. This question is dependent on the following time calculations and other considerations.

It is of course desirable that the attack along the entire front start at or approximately at the same time. This is necessary so that our advance may not be a piecemeal attack which of course would be an advantage to the enemy

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in that he may concentrate his fire on each in turn and break it down. Most of the several elements of Colonel A's command are in column almost a mile to the south of hill 651 so Colonel A must consider how he may direct the heads of different infantry battalions so as to bring them at their respective "jump offs" at about the same time. The 1st Battalion, being the support of the advance guard, is much nearer than any of the others. It would appear that the proper plan to adopt would be to send that battalion to one of the flank lines of approach and not the center; for, being the nearer it would be reasonable to exact of it that it go the farther distance; but the objection to this is that it uncovers the head of the column, and while Colonel A would scarcely expect an attack on the part of the enemy, still the *unexpected often happens*, and as any move to the front of the hostile forces would be best opposed by troops covering the head of the column in rear from the *woods east of 651*, he decides to put the support battalion in the center line of approach.

Now the head of the 2d Battalion is, as stated, about 700 yards north of 714, and the head of the 3d Battalion is about on hill 689. Marching via 623, thence west on the country road one-fourth mile, thence north, the 2d Battalion can reach the north edge of the woods northwest of 651 hill in forty minutes. The same battalion may reach the "jump off" northeast of 683 in 45 minutes by marching via Arter's Mill, thence to the east, on the east and west country road to the north of Arter's Mill a distance of one-fourth mile to the east of the road junction, and thence across country to the north moving via the east slope of the 682, 684, 683 ridge. The 3d Battalion marching via the same routes may reach the north edge of the woods northwest of 651 hill in 55 minutes and the jump off northeast of 683 hill in 65 minutes.

We now have a basis of comparison whereby we may judge as to which units should take up certain march directions. It appears that the longest time is naturally exacted by the 3d Battalion going the longest distance, so as Colonel A desires a reserve in any event, he would properly eliminate this lengthy time element by considering the 3d Battalion

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as available for reserve purposes alone. This leaves the 1st and 2d Battalions as assault battalions. The enemy appears to be more strongly in position at 655 and to the east of that point than to the west so the advance guard commander would consider himself justified in giving a greater extension to the western wing of the attack. It has been shown that the 2d Battalion can reach a "jump off" northeast of 683 hill in 45 minutes. If at the same time the 1st Battalion is given the work of attacking via the central and left lines of approach, while this major could cause his troops to reach their positions earlier than the others, yet due to the fact that he will have such a wide front and consequently must arrange for greater co-ordination he will be given the advantage of the time it will take to get into position. This system seems the rational one for Colonel A to adopt.

The principal thing in regard to the artillery is the necessity for getting it into action at the earliest possible moment. The enemy must be kept interested while the infantry is forming up, and the opening up of our artillery, besides heartening our own men, will serve to draw some searching fire from the Reds.

The head of the artillery column is now just approaching the road junction south of 688 hill. To search for a position much farther to the front would involve a waste of time. Some positions near where the artillery is at present are desired for two of the batteries—the other to go forward and be thereby in a position to reach farther towards the hostile rear. To the battery which goes forward Colonel A would look for work against the hostile artillery as soon as its location can be ascertained. The batteries which take up position at once are, for the present, to work on the hostile line—particularly the point 655 and North 684 hill.

A road junction (714) will shortly be arrived at by the head of the artillery column. By means of a motorcyclist the head of the column of artillery can be reached prior to the time it passes 714. But the cyclist will have to travel via 623—496—530—681—714 in order to avoid the troops between 496 and 714 on the main road. The road to the west from 714 runs along a watershed from that point to the road junction 681 which place is situated on a knoll of high

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ground. No particular danger would be experienced by the artillery in taking this route to a position, in the hollow 300 yards due southeast of 681 for a considerable portion of the journey is in a road cut and thereby hidden from view. The position selected is one from which fire can be opened almost immediately on the hostile line, and the position is ample in extent for the use of two batteries which in turn may be separated one from the other a sufficient distance to give the enemy considerable difficulty in locating them. Observation posts from which the entire hostile line may be seen are to be found at the house near 714, and at the road junction 681. In this latter place a higher altitude obtained by placing the observation post up one of the trees in the vicinity will cause the view of the country to the north to be greatly improved.

The leading battery will be the one to move farther to the front. As soon as it leaves the column an increased gait is taken up and the battery proceeds via 681—530 to a position just north of the road and 200 yards west of road junction 496. Here this battery can prepare for action and open fire not only on the enemy's advanced line but also on the terrain well to his rear. Observing stations on the hill to the front or the high ground to the rear.

It is not expected that Colonel A would go into the *finesse* of the above in his order, but the foregoing shows some of the things he must take into consideration in using his artillery. The commander of the artillery battalion would settle the question of the exact location of his batteries, and division of work amongst them; the battery commanders would select their own observation posts, and artillery reconnaissance officers well to the front would be on the lookout for hostile targets and advanced locations for the batteries in rear.

Colonel A has taken the precaution to have his tanks well in the advance. There are two just north of hill 651 and three in the cut to the south of the same hill. Their proper function is to advance just ahead of the infantry and knock out machine gun nests, It appears from the situation that machine gun fire is most brisk from the vicinity of 655. Here is where the tanks can best be used. They

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can move forward towards 655 and after arriving near that point divide and three move to the right and two to the left along the hostile line.

It might be asked why Colonel A avoided using hill 683 as a "jump off" for the troops going against the enemy by the right approach. The reason for this is that this hill shows up as being one of the best locations for a machine gun position in the theatre. From this knoll fire can be brought to bear on North 684 hill and on the hostile line as far to the west as a point 700 yards west of 655, almost it might be said an enfilade fire. The small knoll 600 yards northwest of 651 hill also affords a good position for a machine gun platoon which permits fire to be brought to bear on 655 and the line to the west. South 684 hill is another good machine gun position but from here fire to the west of 655 is not practicable, but it must be remembered one of our reports states that this portion of the hostile line is thinly held only.

The possibilities and time elements of all combatant troops having been considered Colonel A is ready to issue his orders. It may properly be assumed that he has with him on 651 hill the infantry and artillery battalion commanders, and the commander of the tank platoon.

Colonel A's orders issued 9:05 AM:

"Our information indicates that the enemy opposed to us is an advance detachment sent forward of his main line. This detachment seems strongly posted on North 684 hill, on which hill his left flank rests. Machine guns have been located at 655 and to the east of that point. The line to the west of 655 is weakly held.

"We will attack for the purpose of driving the enemy from the ridge south of Silver Run. Our main attack will be directed against North 684 hill. Both attacks are to be vigorously pushed. H hour at 10:15 A.M.

"The 1st Battalion will move forward in approach formation and form for attack in the woods both east and west of this hill (651 hill). This battalion will attack that portion of the hostile line from the wire fence 200 yards east of 655 to the west to include the enemy's right. General direction magnetic north.

"The 2d Battalion will move via Arter's Mill to the east of the 682—684—683 ridge to a point just northeast of 683 hill. It will be formed for attack, the left resting on the northeast slope of 683 hill, the right extending in the direction of 722. The attack of this battalion will be launched against North 684 hill. General direction, magnetic northwest.

"The machine gun company will place one platoon just southwest of 683 hill, one platoon on South 684 hill (platoon on South 684 hill will watch for hostile aircraft), and one platoon on the knoll 600 yards northwest of hill 651, and from these positions will support the attack.

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"One one-pounder and two Stokes will be attached to the right assault battalion. Two one-pounders and two Stokes to the left assault battalion.

"The cavalry squadron (less troop on hill to our northwest) will be particularly active in covering the right of the 2d Battalion. Patrolling towards 722 and Silver Run (the town) to be incessant. The cavalry troop at the knoll 600 yards northwest of 651 will secure 647 hill and the spur to the northeast. It will cover our left. Patrol towards Green Valley S. H. and Silver Run Creek.

"The artillery battalion from positions on the high ground west of 714 and the ravine west of 496 will open fire on the enemy at the earliest possible moment and support the attack.

"The tanks will move forward from road junction north of this hill (651 hill) at H minus four minutes and direct their advance on 655. From there after wiping out machine gun nests at that place they will divide and three move east and two west along the enemy's line, attacking machine gun nests.

"The 3d Battalion, 1st Infantry, remaining Stokes and one-pounders and Company A, Engineers, constitute the reserve and will proceed via Arter's Mill to the shelter of the woods just south of 564 hill.

"First aid stations will be established at the road junction 375 yards northeast of Arter's Mill, at the farm 400 yards west of this point, and at the house 325 yards east of 682 hill. Signal platoon will lay a telephone line connecting my headquarters with the headquarters of the infantry battalions.

"Messages and reports to me at north edge of cut north of 623."

Verbally to the operations officer:

"See to it that extracts of this order with enough information in regard to the general situation to enable them to act intelligently are conveyed at once to all elements of our command not here represented."

Verbally to a staff officer:

"Ride back along column, have field trains halt in place and clear the road. Same action in reference to other elements of the command not under orders to move to the front, in other words what is wanted is that what is on the road is to be moving this way. Halted elements are to be off the road."

Colonel A then has the following message sent to the division commander:

Adv Gd, 1st Div,
Hill 651, north of ARTER'S MILL,
3 Dec., 9:10 AM.

CG, 1st Div.

Advance held up by Red delaying force on height south of SILVER RUN extending from North 684 hill to the west about 800 yards west of 655. I attack position at 10:15 AM.

A,
Colonel.

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(A-4) AN ADVANCE GUARD ACTION—MAP PROBLEM

MAJOR LAURENCE HALSTEAD,
Infantry

Maps: Gettysburg-Antietam, 1″=10 miles, and 1:21120, Taneytown, Kingsdale, Emmitsburg Sheets.

General Situation:

Eastern (Blue) and Western (Red) states are at war. Main armies are contending on the line Frederick—Point of Rocks. Emmitsburg is an important Red supply center and the Emmitsburg Railroad a Red line of communications.

Special Situation (Blue):

The 1st Blue Division, which, in hostile territory, has been ordered to march via Westminster and Taneytown to Emmitsburg to destroy the Red supply center at that place camped, for the night December 5-6th, southeast of Stumptown. On December 6th the march was resumed via the Taneytown—Bridgeport highway with the 1st Infantry, 1st Battalion, 1st Light Artillery, 1st Squadron, 1st Cavalry, Company A, 1st Engineers, and Ambulance Company No. 4, as advance guard. Information up to the present time is that Emmitsburg has been very inadequately guarded by the Reds but that some resistance may be expected east of the Monocacy. At 8:00 AM, the command is disposed as follows: point (one squad Company A, 1st Infantry) halted at 476; advance party (Company A, 1st Infantry, less one squad) 300 yards east of 476; support (in order of march), 1st Battalion, 1st Infantry, less Company A, one section Stokes and one section one-pounder, one platoon machine gun company, 1st Infantry, Company A, 1st Engineers) head at road bend 1000 yards east of 476; reserve (in order of march), 2d Battalion, 1st Infantry, headquarters company, 1st Infantry, less elements with support; machine gun company, 1st Infantry, less elements with support; 3d Battalion, 1st Infantry, 1st Battalion, 1st Light Artillery, 4th Ambulance Company, field trains) head at point where railroad crosses line of march in Taneytown. Division follows one

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and one-half miles in rear of the last element of the field trains. At this time Colonel A (the advance guard commander), accompanied by his operations officer, the commanding officer, headquarters company, 1st Infantry, the artillery battalion commander, the machine gun company commander, and the support commander, arrives at the northwest corner of the woods 400 yards south of hill 507. He is met here by the squadron commander who gives him the following information:

> "We have located about two under-strength battalions of the enemy with what I estimate to be two batteries which have taken up a position extending south along the east edge of the woods west of Eckhardt. Their line crosses the highway on the east slope of 524 hill and extends to the southwest to include the woods on the south slope of that hill. I have had patrols out both to the north and south of the enemy as far as the Monocacy, but discover no other hostile troops. A patrol from Harney reports that information was received at that place from reliable sources that an enemy column was on the way to the southeast via the Fairplay Road. The Monocacy is not fordable south of Pinehill Mill. The enemy has destroyed the bridge and obstructed the crossing over the small creek, 620 yards east of 476. My squadron (less outstanding patrols on enemy's flanks) is assembling in the woods just southwest of 476."

Colonel A at this moment receives a message from the division headquarters five miles southeast of Stumptown to the effect that reliable information has been received that a hostile force of two regiments of infantry and two battalions of light artillery was on the march to the southeast towards Fairplay and that at 7:45 AM the nearest element was two hours' march northwest from Fairplay.

Required:

(1) Colonel A's estimate of the situation.

(2) Colonel A's orders exactly as given.

Solution

MAJOR LAURENCE HALSTEAD,
Infantry

NOTE:—There are three 491's in the vicinity covered by this problem. These are distinguished as 491 (northwest edge of Taneytown), 491 (north of 526 hill) and 491 (northwest of Eckhardt).

Requirement 1:

Colonel A's estimate of the situation.

Colonel A's mission is to attack the force which has taken up a position in his front. An advance guard is sent

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out before a marching column to protect it and to clear the way. Here is a case where the advance guard is called on to clear the way. The Red force is small and has taken up a faulty position with a river to its rear, a mistake which should be taken advantage of immediately. Colonel A would believe that it would take his advance guard but a short time to overrun the Red force and consequently he is further impelled to attack at once so as to secure a foothold on the far side of the Monocacy. He can lose no time; to hesitate may permit the column from the northwest to join the enemy in his front, a thing the enemy would desire. The column from the northwest was two hours from Fairplay at 7:45 AM. Fairplay is 5½ miles from Alexander so at 8:10 AM the Fairfield force will still be about three hours and twenty minutes distant and Colonel A would be justified in believing that he could dispose of the Reds before that amount of time had elapsed.

Again, if he does not attack but waits for the division commander to make a decision for him, it may be that sufficient time will be gained by the Reds to permit the force from Fairfield to take up a strong position just beyond the Monocacy and thereby cause the 1st Division to have to force a river line and possibly may completely prevent it from performing its work.

Having arrived at the conviction that he should attack, Colonel A would next consider the means of carrying out this idea. The location of the elements of the command are stated in the problem. The point is halted about 1000 yards from the enemy's position and the rest are slowly moving forward towards the front. Several courses of action present themselves to Colonel A. He may attack frontally. He may endeavor to penetrate. He may envelop one flank. He may envelop both flanks. A frontal attack would drive the enemy straight back on his natural line of retreat and would lead to stubborn resistance on his part. It would not clear him out of the way. To penetrate would scarcely be in order, as the enemy command is a small one. Penetration should generally be considered when the enemy is extended on a very wide front. This form of attack could be undertaken with some idea of success, but the ele-

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ment of doubt that exists as to the result of a possible counter-attack by the Red reserves directed against our penetrating force would cause Colonel A to consider some other likely form of attack. To envelop both flanks is the work of a larger force than Colonel A has. It is a form of attack to be used when one's numbers are greatly superior to the enemy. When successful it leads to the enemy's annihilation. Colonel A's force, while superior to the Red force, is not sufficiently superior to cause him to make this form of attack. To envelop one flank seems to be the right thing to do in this case, and that is what Colonel A would properly decide to do.

Since Colonel A is to make an enveloping attack, the next point to settle is which flank he is to envelop, and to do this he examines the enemy's situation. The enemy line is practically along a ridge except his left which has higher ground, the 532 hill, in front of it. His line is generally along the east edge of two wooded areas and the map shows two good lateral roads within a mile in rear of his front line. The position is so located that troops can be moved towards the enemy under cover of the patches of woods on the south slope of 532 hill, the woods northeast of Boyd, the woods around Boyd, and the woods 500 yards southwest of Boyd. These patches of woods afford a splendid position for a holding attack and for machine gun emplacements. From the spur 360 yards south of Eckhardt the line to the southwest can be enfiladed. From the patch of woods 650 yards south of Eckhardt the line west of Eckhardt can be enfiladed. The wooded draws northeast and east of 491 (northwest of Eckhardt) afford means of approach to the left flank, and also the spur extending to the north from 532 will cover troops forming up for attack to the east of the same.

To envelop the enemy's right would cause him to be thrown back on the hostile column approaching from Fairplay. It also would cause the enemy to be pushed up towards the fordable part of the Monocacy where he can more easily make his escape. There is no good route leading to the right flank of the enemy, and the country is more open south of the Taneytown—Bridgeport road than to the north thereof.

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To envelop the enemy's left would drive him away from the fordable part of the Monocacy down to the country where he has to use the bridges to make his escape and also prevents a junction with the Fairfield force. There is a good road, the one via 491 (north of 526 hill) which leads towards this flank.

There are but few positions from which observation of the hostile line can be obtained without going well to the front. Good observation is one of the essentials for the artillery. Hill 463, which is about one mile southeast of 476, seems to afford the best opportunity for observation. From this point the line from the woods south of 524 hill, to the north almost to the extreme left is visible, and the draws northwest, east and south of this hill afford ample defilade for the batteries. To place the artillery on this flank also puts this arm in a situation which permits it to inflict much damage on the Reds when they retreat to the southwest. The next bridge south of the one at Bridgeport is the one at Stull, a range slightly over 7000 yards from the artillery position selected, and fire could be directed on this bridge which, while it probably would not be very efficacious, yet would be harassing to the enemy. The artillery can reach the positions assigned by covered routes.

The machine gun company will be divided because the bulk of it will be with the holding attack. The main or enveloping attack will not need so many machine guns and has not the good locations to use them that exist along that part of the enemy's line the holding attack is expected to keep contained.

The natural use of the cavalry in this situation would be to cover the flanks, and to delay the hostile force, approaching from the northwest. By sending three troops toward Fairplay some delaying action can be counted on, and the troops sent will serve to some extent the purpose of covering the right. A troop has to be retained to cover the left, particularly as the artillery battalion is somewhat thrust out on that flank. Also it will serve to complete the rout of the Red force, when it starts to withdraw.

The company of engineers clears the road so as to facilitate the advance of the division, and thereby make it pos-

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sible for it to meet the hostile Red force approaching from Fairfield before the Reds get a chance to become established.

The position for the reserve in this case is one which merits some consideration. The reserve is desired to fulfill three functions.

(a) To continue the envelopment should that course be necessary.
(b) To support and push through the center should the envelopment not succeed and the holding attack be assailed.
(c) To move out to the front as a new support while the other troops are assembling should the attack succeed without the use of the reserve.

(a) would require the reserve to be well out to the right; (b) and (c) would require it to be located on or near the Taneytown—Bridgeport highway. A medium course would place the reserve in the hollow three-fourths mile north of 507 hill at about the vicinity of 354.0—731.0. In this location it is in a sheltered locality, it can easily move to the right front or left front, and can also move straight west via the unimproved road should the enemy be pushed back early in the engagement.

Colonel A would not cause extra ammunition to be issued in this case because he does not anticipate serious resistance on the part of the Red force. To empty the ammunition wagons at this stage of the game would cause them to be sent to the rear past the entire division for refilling with the prospect of not getting in touch with them for some time, and the men loaded down with excess ammunition not used in the fight.

Colonel A's position should be where he can observe, but in this case he cannot find a very good observation station without going well forward almost to the front line or to the hill 463 which is selected for the artillery. This latter place would put him out of touch with his infantry envelopment so Colonel A would properly select a post at 507 hill where he can be in touch with all elements of his command and also can be found easily by the division commander when he arrives.

The time for the attack to begin is arrived at by computing the length of time it will take for the enveloping wing to arrive at its position and adding a small amount of time necessary for deployment and delays.

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In view of the foregoing, Colonel A's decision is to attack the enemy, enveloping his left flank. One battalion of infantry to be used for holding the front, one to envelop, one for a reserve. The artillery to be placed near 463 and directed to place a heavy fire on that part of the hostile line the enveloping attack is to assail. Engineers to clear road to the front and a signal line to be laid connecting Colonel A's post with the enveloping wing, the holding attack, the reserve and the artillery.

Requirement 2:

Colonel A's orders.

At 8:10 AM, Colonel A issues the following verbal orders to the officers assembled with him at the corner of the woods 400 yards south of hill 507:

"The enemy, consisting of what I estimate to be a couple of weak infantry battalions reinforced by two batteries is in position across the highway, extending from the woods west of Eckhardt to the woods on the south slope of 524 hill, both inclusive. A column of hostile troops estimated at a couple of regiments and some artillery is approaching from the northwest via the Fairfield—Fairplay road, but this column is as yet about three hours and twenty minutes off. Our division follows at one and one-half miles in rear of our column.

"We will attack the enemy in our front enveloping his left flank. H hour will be 9:20 AM.

"The artillery battalion will go into position in the hollows northwest, east and south of hill 463 and will at once engage the enemy. Commencing at H minus fifteen and continuing for twenty minutes a heavy fire will be placed on the enemy west of Eckhardt.

"The 1st Battalion, 1st Infantry, with the machine gun company (less one platoon) and the Stokes mortars and one-pounder now attached to it, will attack the enemy's line from the front, woods southwest of Boyd—woods on south slope of hill 532, both inclusive. The right will rest on the fence which extends from the Eckhardt farm house to the west.

"The 2d Battalion, 1st Infantry, to which will be attached two Stokes mortars, one one-pounder, and one machine gun platoon, will march via 491 (northwest edge of Taneytown)—487—491 (north of hill 526) and will attack the enemy's left flank from the cover of the line, north slope of 532 hill—draw and woods east of 491 (northwest of Eckhardt)—draw and woods northeast of 491 (northwest of Eckhardt). The left will be directed on the point where the fence which extends to the west from Eckhardt enters the woods to the west of that place. The Stokes, one-pounder, and machine gun platoon for this battalion will report to the battalion commander at road junction 491 (north of hill 526).

"The cavalry squadron will send three troops via 491 (northwest edge of Taneytown)—513—Longville—Harney towards Fairplay to cover our right and delay any advance of the enemy column from that direction and also to give timely warning of the

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approach of the hostile column reported to be moving on us from the direction of Fairfield. The remaining troop will cover our left by active patrolling and will stand ready to pursue the Red force when it breaks.

"Company A, 1st Engineers, will repair the bridge and remove obstructions at the crossing over the small creek 620 yards east of 476.

"The 3d Battalion, 1st Infantry, will proceed via the 491 (northwest edge of Taneytown)—Longville road to Piney Creek hollow and thence west down Piney Creek a distance of three-fourths mile and there, as reserve, await orders.

"Extra ammunition will not be issued.

"First aid stations will be opened at or near 476 and the south slope of 526 hill.

"Reports and messages to me at 507 hill."

To the operations officer:

"Ride back to the reserve and start the 2d Battalion on its route; give the battalion commander the gist of the foregoing order and inform him that three troops of cavalry may pass his column at some point on the road to 487 and that he is to have arrangements made for letting them pass without delay. Direct him to report to me at hill 507 for further instructions as soon as he has started his battalion to the northwest. Then go down the column and give the orders to the 3d Battalion; see that the artillery is afforded assistance in passing this battalion; and have the road to the rear generally cleared of troops and trains not enroute to the front. Direct commanding officer, 3d Battalion, and commanding officer, Ambulance Company No. 4 to report to me at hill 507."

To the commanding officer, headquarters company, 1st Infantry:

"Make your necessary assignments to carry out the provisions of my attack order and have your signal platoon run a telephone line from 507 hill to the position of the reserve and from thence on to the 491 (north of 526 hill) so that I may be in communication with both the reserve and the 2d Battalion."

(B-1) FLANK GUARDS

CAPTAIN J. A. MCANDREW,
Infantry

Study of flank guard action in war emphasizes a fundamental principle underlying all tactical conduct—that to cling to any normal arrangement when the conditions of the action are not normal will be liable to disaster. Flank protection must be the unceasing care of every commander from the platoon up. Nothing can avail to excuse any commander of troops for permitting his flank to be unexpectedly

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attacked, even though the care of that flank has not been enjoined upon him in orders. This principle has often been neglected in war and many of the disasters that have befallen troops are directly traceable to such neglect.

Flank Guards

On the march, the flanks of a column may be protected in part by the advance guard which carefully examines the ground on both sides of the line of march, or by patrols sent out to the flanks by the main body. It may be necessary, however, to provide additional security for a flank threatened by an enemy. This is done by sending out a detachment called a flank guard to protect the threatened flank.

Disadvantages of Flank Guards

Every detachment sent out from the main body is a partial sacrifice made of the unity of the command. These detachments may render control difficult and may delay the movements of the main body.

Advantages

Flank guards may expedite deployment of the main column and may enable a commander to seize the required position opportunely and sometimes envelop the enemy's flanks. They often form the only possible means of protecting the column from coming unexpectedly under flanking fire of the enemy.

Composition of Flank Guards

The composition of flank guards depends upon the situation. They may be strong in cavalry on account of the necessity for rapid reconnaissance and communication. They may be composed entirely of cavalry. Cavalry can push back hostile patrols and delay even larger bodies of cavalry. It cannot furnish protection in the full sense of the word. It lacks the necessary defensive power. When positions are to be held strongly and prolonged resistance to the enemy is expected, the flank guards must be strong in infantry

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and, generally, troops of all arms are necessary. The proportion of each arm is determined by the tactical situation. No more troops should be placed in the flank guard than the situation actually requires. If it is desired that hostile patrols be prevented from approaching the column, and that timely warning be given as to the direction from which the enemy is approaching, a flank guard composed of cavalry can properly accomplish this mission. If it is necessary to give the flank guard the defensive power necessary to withstand or delay vigorous hostile attacks, infantry must form a part of it. To come to a decision as to whether the infantry is to be a part of the flank guard, consider the type of resistance which it is desired to place in front of the hostile advance.

Strength of Flank Guards

Flank guards vary in size from patrols to detachments of all arms. Their strength is always determined by the type of mission with which they are charged. The strength is calculated on the available data as to the size of the body of troops with which the enemy can strike the flank. As a general principle the flank guard will always be less than this estimated strength of the enemy. When the object of the advance is to discover the enemy and bring on an engagement when he is located, the flank guard need only be of sufficient strength to hold up the enemy's advance while the main body is deploying for action. In this type of situation the strength of the flank guard will depend on the strength of the main body, the terrain and whether or not the march formation of the main body permits a quick deployment for a flank action. Depending on these considerations the strength of the flank guard may vary between one-twentieth and one-third of the command. On the other hand should the mission of the main body be such as to require it to reach its destination without being compelled to halt and fight, the strength of the flank guard would vary between one-sixth and one-half of the estimated strength of the enemy forces threatening the flank.

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Formation of the Flank Guard

The formation to be taken by a flank guard is similar to that taken by any other body of troops marching in the presence of an enemy. It takes all necessary measures to protect itself from observation, annoyance and surprise. This security is obtained by covering the immediate position of the command by advance, flank and rear guards and, if available, by cavalry operating to the front and on the exposed flank.

Distance From the Main Column

In an abstract case it is impossible to express an exact maximum distance. The maximum distance will depend on the length of the main column and the time necessary for the main column to pass a dangerous position, to reinforce the flank guard, or to deploy for action. The above considerations, taken in conjunction with the road system and the terrain, will determine a solution in each particular case. The minimum distance is fixed. If the enemy is armed only with small arms, this distance must be greater than the effective range of these weapons. If the enemy be equipped with artillery the distance must be greater than the effective range of artillery.

The *flank guard* may be sent out by the advance guard or by the main body, or the larger units in the main column may provide their own protection.

Methods of Protection

In general, there are three methods of using a flank guard to protect the flanks of the main column:

First—By having the flank guard march on the threatened flank and in a direction generally parallel to the main column and keeping abreast of it.

Second—By sending a flank guard toward the enemy which is believed to threaten the flank of the main column. When the flank guard has fulfilled its mission, it rejoins the main column.

Third—By the employment of a flank guard which moves by bounds on the exposed flank from one key position to another.

First Method (Parallel Column)

To enable a flank guard to march in a direction parallel to the main column, and to keep abreast of it, there must

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be a suitable road available for such a march. This road must not be so distant from the route traveled by the main column as to prevent the flank guard keeping in constant communication with the main column, or to permit of its being cut off from the main column and destroyed. Again this road should not be so close to the route travelled by the main column that the flank guard can neither prevent needless interruptions in the march of the main column nor give the main column time to deploy should the enemy attack from the flank. Should there be a route having the above requirements, there is another requisite to be considered. The road traveled by the main body should not be separated from that to be traveled by the flank guard by difficult or impassable obstacles, which might expose the flank guard to the danger of being destroyed before support could reach it.

If the main column be long, the flank guard will have to be large, even though the hostile force be small; otherwise the flank guard will be forced to split up into small groups, causing dispersion. This is the case when each regiment in the column furnishes its own flank protection. Such a series of small mobile detachments moving on the exposed flank will lack resisting power. However, if the commander of the main column desires to prevent the observation of his march by individuals and small groups of the enemy, a series of small mobile posts moving on the flank can furnish this protection. Such protection will not be effective if the enemy can attack in force. It is very frequently impossible to obtain the parallel road and the other conditions and therefore the flank guard must be able to protect the main body by a different method of action.

Second Method (Successive Detachments to the Flank)

In this method the flank guard moves directly toward the probable enemy, takes up a favorable position and remains there until the column has passed. As the flank guard moves over a greater distance than the main column, it is generally sent out in advance.

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Third Method (Occupation of Successive Key Positions)

This method of protecting the flank of a marching column has the advantage of giving the greatest protection with the minimum number of troops. It is not, however, of universal application. Its successful employment requires a skillful commander, a proper assignment of cavalry for the flank guard, the prompt receipt of negative information, and a system of rapid communication between the main column and flank guard and between the flank guard and its patrols. All of the above requirements are within the powers of any well organized and trained body of troops. This method of flank protection is very efficient if the enemy is not already near the flank of the column and the danger of his attack is not imminent. If the enemy be near, the danger of his attacking is greater and the protection of the flanks must be obtained at a greater cost in detached troops. This type of flank protection is valuable when the mission of the main column requires it to reach a certain position with the maximum number of its forces in hand, and to avoid any delay caused by flank actions of the enemy.

Decisions

The commander in his estimate of the situation decides whether or not he will need flank protection, and if so, the minimum strength necessary to furnish this protection. He decides upon the method most suitable to the circumstances. This method should be free from any set form of procedure. He details the force and gives the necessary instructions for its conduct. In these instructions should be included the place and time of departure, route and special mission. In general, the flank guard commander will be ordered to do one of three things:

First—March forward on a parallel route abreast of the main column.
Second—Take up a fixed position on flank of main column.
Third—Advance by bounds on the exposed flank.

Whichever method of protection is prescribed, the flank guard on the march requires the same protective formation to the front and outer flank as an advance guard.

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Sometimes it must form a rear guard of its own. The method by which it moves over its route, before it has come in contact with the enemy, is similar to that of any other body of troops under like conditions.

In conducting the flank guards by the occupation of successive defensive positions along the route of advance of the main body, it is necessary to consider in detail some of the features connected with this method of action. The features first to be considered are the key positions to be occupied by the flank guard.

Key Positions

Assume that in a particular case there may be on the flank of the route of advance of the main column several positions which, owing to the road system or condition of the terrain, command the available routes of advance of a hostile force intent on striking the flank of the column. For the purpose of discussion call these positions key positions. A very much smaller force could protect the route of march, when stationed at one of these key positions than if it were marching and were compelled to fight wherever the enemy might strike it. The force necessary to protect the flank could be reduced in strength below that used in any other method. A flank guard of cavalry, or of infantry with truck transportation, will be necessary if it is to move from one position to another without delaying the advance of the main column. A successful execution of protecting the flanks by this method depends on the skill of the flank guard commander and the proper organization of a good system of communication.

Distance of Key Positions

If there are a number of these key positions situated at greater and less distances from the flank of the main body, the question arises as to which of these are to be selected for occupation by the flank guards. If, when the enemy strikes the flank guard, the mission of the latter is to fall back, fighting a series of delaying actions in order to gain time for the main column to pass, one of the more dis-

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tant points might be occupied as this would give the flank guard space to maneuver and even the traversing of this distance would be a cause of slowing up the enemy.

There is a danger, however, in occupying key positions at too great distances. The flank guard will ordinarily have to fight a superior force of the enemy. During the delaying action brought on by the flank guard (and this is a most difficult form of action) the flank guard may become so involved in the fight that the breaking off of the engagement may become impossible. This condition would probably result in the destruction of the flank guard. If the mission of the flank guard is to hold the enemy until the main column can support it, the nearer positions would be preferable, provided sufficient space is available for deployment of the main body.

Negative Information

Too much importance can hardly be attached to the rapid transmission of negative information to the commander of the flank guard. The greater the distance at which these patrols operate from the flank guard, the nearer to perfection should be the transmission of the information. This information should be transmitted at regular intervals of time to the flank guard commander. The action of the flank guard commander is frequently based on the information that the enemy is not in a certain place at a certain time, or that a certain tract of country is, or is not, occupied by the enemy. The system of gaining negative information consists in employing a line of contact patrols only, without any supports.

It is suitable for reconnaissance in those directions in which the presence of the enemy, although possible, is unlikely. If any opposition be met, the system at once becomes impracticable. The value of this system lies in its economy, as a weak force is just as able to acquire negative information as a strong force. Thus the absence of the enemy from large areas may be quickly and definitely ascertained by a small proportion of the total force available for reconnaissance.

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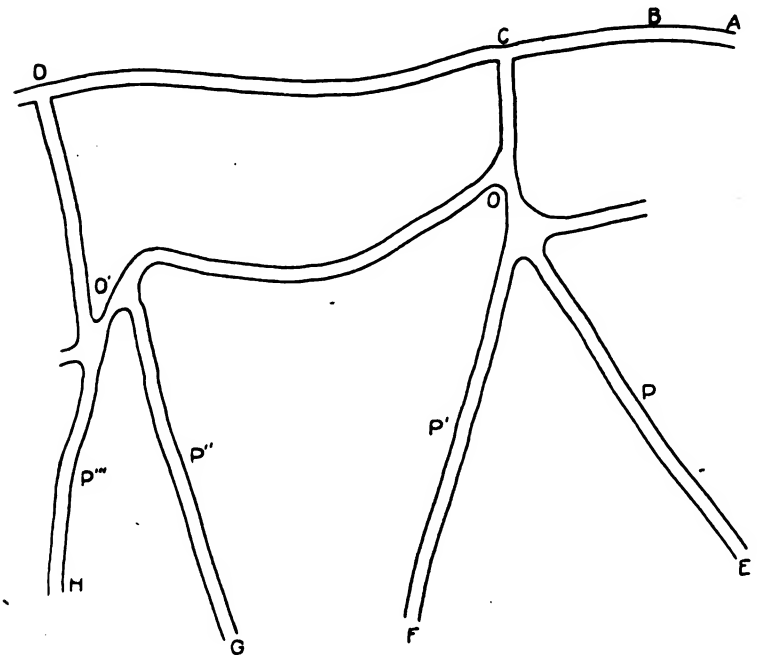
Calculations in Conducting a Flank Guard

Suppose a flank guard is in a key position *O* protecting the main column as it moves along the route *A*—*D*.



If the enemy is moving toward the flank of the main column along the route *EO* or *FO*, the flank guard can move to the second position *O'* when the tail of the main body has reached the point *B* where *OC*=*CB*. Now if a cavalry patrol posted at *P* or *P'* makes known there is no enemy visible from the point *P* the flank guard can start its movement toward *O'* when the tail of the main body has reached a point *A* on its route which is distant from *C*, the length *CP* minus the distance traveled in the time necessary for the information from patrol *P* or *P'* to reach the flank guard commander at *O*. Again, if the length of the main column equals *CP* minus the distance travelled in the time necessary for the information from patrol *P* or *P'* to reach the flank guard commander at *O*, the flank guard can leave *O* for *O'* when head of the main body reaches point *C*. Therefore, if the flank guard commander can receive negative infor-

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mation of the point not yet reached by the enemy, he can decide almost to a certainty the time when, without endangering the main body, he can move from position *O* to position *O'*. The better his system of information the wider the latitude the flank guard commander enjoys in the selecting the time for making his march from *O* to *O'*. The march from *O* to *O'* should be made without loss of time, and as a unit under control. During its halt at position *O* the troops are covered by march outposts which play the role during the advance to *O'* as advance, rear and flank guards.

Take the condition in which the enemy, being expected to advance along the routes *EO* or *FO*, decides to advance along the routes *GO'* or *HO'*. If the flank guard remains ignorant of such an advance by the enemy, the main column will be struck near *D*. To prevent such a situation the flank guard commander must watch these possible routes of advance of the enemy.

It is possible to determine mathematically the distance along the routes *GO'* and *HO'* in the direction of the enemy, which should be watched by the flank guard commander. This is determined by calculating the time it will take for the information obtained by the reconnaissance patrols on routes *GO'* and *HO'* to get its information back to flank guard commander. Add to this time the time necessary to move the flank guard from *O* to *O'* in order to be in position to confront the advance of the enemy. Take the sum of these two times. The minimum distance for *O'* in the direction of the enemy's advance should be the distance the enemy can travel in this total time.

The above are mathematical calculations and it is necessary to base the principle of movement on these calculations. They cannot be ignored. It is also just as necessary to know how to apply these calculations in war by relieving them all of their mathematical fixedness and rigidity.

Now make the supposition that the tail of the main body is still in need of protection at *O* and the report of the patrol at *P''* or *P'''* indicates that a body of enemy troops is advancing on *O'*. Here the flank guard commander is confronted with an actual danger on route *GO'* or *HO'* and a probable danger still existing along the route *EO* and *FO*. He will be compelled to make a decision as to whether he will

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advance his entire force at once to O', or whether a part of his force is still to remain temporarily at O. Of these two dangers, one certain and one probable, the greater part of his force must be placed opposite the greater danger. As a general principle the greater the distance the tail of the main column is from C as compared to the distance CP or CP', the larger the force to be left at O. In any case the detachment left at O should make all the necessary arrangements to rejoin the main body of the flank guard at O' as soon as protection is no longer necessary at O.

Assume the condition where due to defective observation and reconnaissance, the enemy, unless his advance is delayed, can reach O' before the flank guard. It is the duty of the cavalry out in front of the flank guard to cause this delay by a series of dismounted actions, and permit the flank guard to reach O' ahead of the enemy.

Assume a case where, in spite of the efforts of the cavalry, the enemy reaches the position O' before the flank guard. The only course of action remaining to the flank guard commander is to attack the enemy vigorously and push the attack to the end. If it happens that the enemy is not well in hand, and not able to bring into action all his power, the attack of the flank guard may succeed in holding up the enemy's advance, or at least to enable the main column to take the proper action.

From the above brief account of this method of action of a flank guard, it is seen that the flank guard moves by bounds at carefully calculated hours. That the movement based on calculation is a method to be applied in war with care, and especial discernment, and in order to be prepared to meet the unforeseen with this method, it is necessary to make many calculations of space and time.

Types of Action by Flank Guards

The first type is exactly similar to that of an advance guard action. The second type is similar to a rear guard action. The principles underlying the particular type of action to be taken depend entirely on the mission of the main column. This mission of the main column, as it affects the action of the flank guard, generally falls into one of two general classifications.

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First—The commander of the column is seeking the enemy with the intention of fighting him wherever he may be found. During the execution of a mission of this type, if the enemy strikes the flanks of the column, the action of the flank guard is exactly similar to the action of the advance guard coming in contact with the enemy. That is, in general terms, it endeavors to hold up the advance of the enemy and thus enable the main body to deploy for action before coming under effective fire from the enemy. All the principles applying to the conduct of an advance guard in such a situation would apply in like manner to the conduct of the flank guard.

Second—The commander in this case is at a position *R*, and the situation demands that he move without delay from *R* to a position *S*. Now, if in going to position *S*, the column is compelled to pass near an enemy capable of hindering its march, the column protects itself on the dangerous flank by a flank guard. In this case the mission of the column is to reach *S* without fighting or having the march delayed from the flank direction. If forced to give battle in the flank direction, to enable the column to reach *S*, the strength employed should be the minimum necessary to do the work. This will enable the column to reach *S* with the maximum of its force. If it were desired that the battle take place in a flank direction, the column would march in that direction with an advance guard in front. The concession which the commander must make, under this type of mission, in detaching a flank guard, sacrifices unity of his command. The strength in this case is proportioned to the probable danger. The flank guard does not fight to gain a victory, but to gain time. It fights to gain the necessary time for the main column to march past the threatening enemy and put itself beyond the interference of the enemy in carrying out its prescribed mission. The flank guard should accomplish its mission with the least impairment of its strength that the conditions render possible. The action of the flank guard would be similar to that of a rear guard, that is, it fights a series of delaying actions. In order to do this, the commander of the flank guard must show great ability in handling his command. This will be shown in his selecting strong positions which will permit him

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to withdraw the units engaged to successive positions in rear at each of which he can make another stand. In selecting such positions the commander seeks the entrance to a defile, a border of a woods, entrance to a village, points having an extended field of fire and a command of the routes of the enemy's advance.

(B-2) FLANK GUARD ACTION—MAP PROBLEM

The following map problem will illustrate certain phases of a flank guard action.

Maps: Gettysburg-Antietam General Map 1" = 10 miles and 1:21120. Bonneauville, Gettysburg and New Oxford Sheets.

General Situation:

The Blue Ridge and South Mountains separate the Blue (western) and the Red (eastern) territory.

The 1st Blue (western) Army in hostile territory was defeated 29 November, 20, near Baltimore, and commenced its retreat through Gettysburg and Taneytown to the frontier.

On the afternoon of 3 December the victorious Red army was nearly a day's march behind and the Red forces were making every effort to prevent the Blue army making good its retreat.

Special Situation:

The morning of 3 December information was received that a Red division was approaching from York.

The 1st Blue Division, charged with protecting the right flank of the Blue army, bivouacked around Littlestown the night of 3-4 December.

The rear guard of this division consisting of one squadron 1st Cavalry, 1st Infantry, 2d Machine Gun Battalion, 1st Light Artillery, one company 1st Engineers, and 4th Ambulance Company, Brigadier General A in command, was furnishing the outposts to the east.

The 2d Infantry in bivouac near Whitehall was furnishing the outpost to the north.

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At 10:00 PM 3 December, the division commander received a message from the corps that a Red division was in camp at New Oxford and would probably march in the morning to intercept the retreat of the Blue division; that the division would start at 6:00 AM and would march through Gettysburg; that the Baltimore Turnpike and the next road to the south, through D. Spangler—King—450 were available for the division.

The division commander makes the following decision: to march the troops with combat train on the Baltimore Turnpike; to march the division train and field trains on the southern road; to cover the march of his division by a right flank guard.

The divisional cavalry is now with the rear guard, and probably maintaining contact with the advancing Reds east of Littlestown. It is vital to the success of the flank guard that it be furnished with cavalry. There are two courses of action open to the division commander regarding the cavalry. He may recall the cavalry squadron attached to the rear guard or such portion of it as can be secured, or call on the corps for an additional squadron.

The rear guard is strong and the new flank guard must also be strong if it is to delay the advancing Red division. If the division be not delayed by the advancing enemy on the flank, the danger from the rear is slight. Therefore to avoid dispersion of his command and to keep it under control, it is necessary to reduce the strength of the rear guard for the next day's march.

The mission of this flank guard is not to gain a victory, but to delay the enemy's advance a sufficient time to enable the main body to march by. The best weapons for this purpose are artillery and machine guns, with sufficient infantry to furnish the resistance. The division commander decides that a regiment of infantry is a sufficient force for this purpose. In order to keep one infantry brigade intact, he decides to place the 2d Infantry in the flank guard. The position of the camp of this regiment is an additional reason for this decision.

In determining the amount of artillery to be placed in the flank guard consideration must be given to the facts

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that, although the enemy may advance over more than one road, too much artillery with the flank guard makes this column unwieldly, and that the number of branch roads leading north from the Baltimore Turnpike will render support with artillery sent from the main column easy. Therefore one battalion of 75's is placed in the flank guard.

The type of fighting which the flank guard will be called upon to do will require many machine guns. For this purpose it is decided to give the flank guard a battalion of machine guns. Moreover, as the danger threatening the rear of the division is small as compared to that coming from the flank direction, it is decided to take the 1st Brigade Machine Gun Battalion, now part of the rear guard, and put it in the flank guard. This also prevents splitting up the 2d Brigade.

An engineer company will be necessary to assist in delaying the enemy by obstructing the roads, destroying bridges, etc.

As the ambulance company (animal-drawn) is with the rear guard, it will be necessary to assign a motor ambulance company to the flank guard.

Owing to the importance of this command, the brigade commander of the 1st Brigade, General A, who has been in command of the rear guard, is placed in command of the flank guard. As the rear guard is to be reduced in strength for the day's march, and as the 2d Infantry is one of the regiments of General A's brigade, this seems to be a logical course of action.

Composition of flank guard:

2d Infantry.
1st Squadron, 1st Cavalry (less one troop).
1st Light Artillery (less one battalion).
2d Machine Gun Battalion.
Company A, Engineers.
2d Ambulance Company.

Length of main body of flank guard, 3½ miles; marching time one hour, 24 minutes.

In addition to this flank guard, the division commander decides to use airplane reconnaissance and observation over all possible routes of advance of the Red division. Dropping grounds will be designated for the flank guard, where the

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information discovered by the airplanes can be communicated to the flank guard commander by means of dropped messages. In addition to this method, such other means will be employed as may be indicated in the plan of signal communications.

The division will march 4 December in three columns.

First column on Baltimore Turnpike.

Advance Guard:
Main Body.

Division headquarters	525	yds.
1st Engineers (less two companies)	1235	"
1st Machine Gun Battalion	1010	"
2d Brigade (less one battalion)	7085	"
1st Field Artillery Brigade (less one battalion and one battery)	10395	"
1st Infantry (less one battalion)	2320	"
4th Ambulance Company (animal)	340	"
	22910	"

Length of main body, 13 miles.
Marching time, 5 hours and 12 minutes.
Rear Guard:

Second column on road south of the Baltimore Turnpike.

Division trains (less two ambulance companies).
Division field trains.

Third column. Right flank guard on Hanover Road.

The Flank Guard Commander's Estimate of the Situation

There are four probable routes of advance by the enemy.

1. Directly on Bonneauville—Distance 6 miles—time 2 hours, 24 minutes.
2. To Guldens, thence south—Distance 7½ miles—time 3 hours.
3. West of Granite Hill, thence south—Distance 8¼ miles—time 3 hours, 18 minutes.
4. To Gettysburg—Distance 9½ miles—time 3 hours, 48 minutes.

The action of the flank guard commander at any particular time will be based not only on the action of the enemy, but on the position of the main body of his division at that time.

If the head of the main body reaches Tollgate at 6:00 AM, the tail will clear this place at 11:12 AM.

The tail will clear Two Taverns at	12:48 PM.
The tail will clear White Run at	1:36 PM.
The tail will clear Rock Creek at	2:00 PM.
The tail will reach outskirts of Gettysburg at	2:48 PM.

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If the enemy starts from New Oxford at 6:00 AM, his advance, if not delayed, would reach Bonneauville by 8:24, and by 9:30 AM would be sufficiently deployed to the south to stop the division at the time the head of the main body is between Rock Creek and Gettysburg. If the enemy marched on Gettysburg he could reach a position east of Gettysburg by 10:00 AM at which time the head of the main body of the Blue division would be entering this town from the south. The enemy therefore has about an equally good chance, so far as time is concerned, by any one of the routes considered. However, it would be to his advantage to strike as soon as practicable while his troops are fresh. In any case the flank guard must delay the enemy about four hours.

Flank Guard Commander's Mission

To delay the enemy for four hours upon whatever route he may advance.

Favorable Positions

There is a good position in the vicinity of hill 627 northeast of Bonneauville that the flank guard can occupy to delay the enemy should the latter advance in that direction.

There is another good position (hill 571) near Mount Vernon S. H. should the enemy come by Guldens.

There is another good position (hill 606) northwest of Storrick should the enemy advance by Granite Hill.

Benners Hill and hill 566 offer a final position before Gettysburg.

The best route to these positions is along the Hanover Road. Should later developments indicate that either the position near hill 571, or the position near hill 606, is the one to be occupied by the flank guard, the length of the column can be shortened and the units of the flank guard can be marched more nearly in their relative fighting positions by marching the artillery and the ambulance company along the road Bonneauville—587—535—516—452.

This flank guard will have to locate the direction of advance of the Red division, place itself in a position to delay the enemy, and then make good its retreat. That is, it will

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not be sufficient for the flank guard to march parallel to the division towards Gettysburg. It is at present impossible to say where and how the halt is to be made. This must be determined on the march after receipt of further information. It is certain, however, that until the situation becomes more clear the flank guard must not go much beyond the vicinity of Bonneauville. This place may then be considered, for the present, as the objective in the order to be issued.

FLANK GUARD COMMANDER'S DECISION

To send his cavalry as advance cavalry to gain contact with the enemy division, and to march his command to Bonneauville.

The following would be a suitable form of the order to be issued:

FLANK GUARD ORDER

Flank Guard, 1st Division,
High School, WHITEHALL,
4 Dec 19, 3:30 AM.

FIELD ORDERS
No —

Maps: 1:21120, Bonneauville, Gettysburg and New Oxford Sheets.

Troops

(a) Advance cavalry
Maj T
1st Sq 1st Cav (less 1 tr and 1 plat)

(b) Advance guard
Maj R
1 plat Tr D 1st Cav
1st Bn 2d Inf
MG Co 2d Inf
1 sec SM
1 sec 1-pdr

(c) Main body—in order of march:
2d Inf (less 1st and 3d Bns and MG Co)
2d MG Bn
1st LA (less 1 bn)
3d Bn 2d Inf
Co B Engrs
2d Amb Co

1. A Red division is now in bivouac near NEW OXFORD. Our division will continue its retreat through GETTYSBURG starting at 6:00 AM.
2. This detachment constitutes the right flank guard of the division.
3. (a) The advance cavalry will start at 6:00 AM, advance toward NEW OXFORD, gain contact with the enemy and delay his march, without becoming closely engaged. Prompt information must be furnished headquarters of the flank guard of the enemy's line of advance.
   (b) The advance guard will clear the northern exit of WHITEHALL by 6:00 AM and follow main road to BONNEAUVILLE.
   (c) The main body will follow the advance guard at 800 yds.

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(x) The outpost will stand relieved when the advance party of the advance guard crosses their line of observation. The outpost troops will then close in on the road and take their place in the column.

4. All field trains will march with those of the division and will be reported to the officer in command of the division field trains at such hour and place as he designates.

5. Messages until 6:00 AM to these headquarters; after that hour to the tail of the reserve. Dropping ground for airplane messages point 358.8—747.1.

A,
Brigadier General.

Distribution:
1st Div
1st Sq 1st Cav
2d Inf, 8 copies
2d MG Bn
1st LA
Co B Engrs
2d Amb Co

At the beginning of the march it cannot be foreseen what must be done after arriving at Bonneauville, whether a position in readiness or a defensive position must be occupied, and if so, where; therefore nothing is said about it in the order. This would be the subject of a new order which cannot be issued until after the receipt of messages from the cavalry or the air service.

(B-3) MARCH WITH A FLANK GUARD—MAP PROBLEM

CAPTAIN KERR T. RIGGS,
Cavalry

Maps: Gettysburg-Antietam, General Map, 1″ = 10 miles.
1:62500, Fairfield, Gettysburg and Emmitsburg Quadrangles, and 1:21120, Emmitsburg, Fairfield, Knoxlyn, Gettysburg and Sabillasville Sheets.

General Situation:

Maryland (Blue) and Pennsylvania (Red) are at war. A Blue army along Conewago Creek is opposed by a superior Red army. The independent cavalry divisions of the two armies are opposing each other east of the main armies. For the past week the Blue army has with difficulty maintained its position against heavy attacks by the Red army.

Other Red forces are known to be concentrating west of South Mountain.

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Special Situation:

The left of the 3d Blue Corps (on the left of the Blue army) is near Biglersville, with a regiment of cavalry operating between Arendtsville and Cashtown.

The 15th Blue Division has been sent by rail from Baltimore with orders to prevent any enemy advance by the Waynesboro Turnpike and Hagerstown Road exits from the mountains. It finished detraining this morning, May 25, 1919, at Emmitsburg and went into bivouac in and around the town.

The divisional cavalry, 1st Squadron, 15th Cavalry (less one platoon, Troop A) was sent early this morning to the vicinity of Zora to patrol toward Monterey, Blue Ridge Summit and Sabillasville.

The 1st Battalion, 57th Infantry, and one platoon, Troop A, 15th Cavalry, have established outposts on the approximate line, hill 523 (north of Emmitsburg) hills 563 and 544 (northwest of Emmitsburg)—crossroads 443.

The remainder of the 29th Infantry Brigade is bivouacked along the creek north of Emmitsburg.

The 30th Infantry Brigade is bivouacked south of the town and west of the Emmitsburg—Longs road.

The 15th Field Artillery Brigade and the 43d (divisional) Machine Gun Battalion are bivouacked east of the above stated road.

The engineer regiment and field signal battalion are billeted in the town.

Field and combat trains are with their organizations; all other trains are at St. Joseph's Academy.

The divisional observation squadron (15th) was detrained at Longs and is bivouacked near that place.

Headquarters of division, artillery brigade and both infantry brigades are in Emmitsburg.

A warning order was issued at noon today for the division to be ready to march tomorrow.

At 4:00 PM, 25 May 19, General A, the division commander, received the following order by wire from Commanding General, 3d Corps, at Gettysburg:

> "Corps cavalry reports strong hostile column of all arms, 15 miles northwest of Arendtsville at noon today. Hostile cavalry patrols were reported west of Orrtanna and at Mount Hope today. Telegram from General Headquarters places 15th Divi-

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sion under orders 3d Corps. 15th Division, as corps reserve, will march tomorrow to Seven Stars, head of main body to arrive at Seven Stars not later than 6:00 PM. Railhead for division, Emmitsburg. 15th Observation Squadron will use corps airdrome at Fairview S. H. northeast of Gettysburg. 20th Division detrains at Emmitsburg tomorrow, and, at 4:00 that afternoon, relieves 15th Division of covering Waynesboro Turnpike and Hagerstown Road."

At 6:00 PM, 25 May 19, General A. received the following message from his cavalry commander at Zora:

"Two prisoners from patrol of Troop A, 10th Red Cavalry, captured at FOUNTAIN DALE at 2:00 PM today state that two squadrons, 10th Red Cavalry, arrived May 24 from WAYNESBORO to hold railroad at BLUE RIDGE SUMMIT and MONTEREY; that one battalion Red infantry arrived at MONTEREY by train early this morning and relieved prisoners' squadron which was then ordered to patrol toward EMMITSBURG and FAIRFIELD. Prisoners also heard that another battalion of Red infantry arrived at BLUE RIDGE SUMMIT this morning, but are not certain of this. They know nothing of the intentions of the Red force."

Required:

1. General A's estimate of the situation.
2. The formal field orders issued by General A.

Solution

MISSION

First Requirement:

Under his original orders, General A's mission was "to prevent any enemy advance by the Waynesboro Turnpike and Hagerstown Road exits from the mountains." His entire division was available for this purpose. His new order does not relieve him of this mission of covering the two roads until 4:00 PM, 26 May; but, by directing the division to march to Seven Stars and by fixing the time of arrival of the head of the main body there at not later than 6:00 PM, 26 May, the new order does change the mission of the bulk of General A's command.

Under his new orders, General A's mission is, therefore, to march his division tomorrow, as corps reserve, to Seven Stars and to make such dispositions as may be necessary to cover the Waynesboro Turnpike and Hagerstown Road, until relieved of this duty at 4:00 PM by the 20th Division.

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The reason for this change of mission is to be inferred from the changed situation on the left flank of the corps.

THE ENEMY

The hostile column of all arms reported 15 miles northwest of Arendtsville at noon today is about one day's march from the left flank of the Blue army. Sufficient information has not yet been received to enable General A to predict with any accuracy the future movements of the Red column. It is possible that the division may be called upon to oppose an attack against the left flank of the army on May 27.

No very definite conclusions can be drawn from the presence of Red cavalry patrols west of Orrtanna and at Mount Hope. Though the distance is twenty-five to thirty miles from the Red column reported northwest of Arendtsville, it is possible that they may be reconnoitering patrols sent out far to the front and flank of that force; they may belong to a column, not yet reported, advancing by one of the other roads through the mountains; or they may belong to one of the squadrons reported by prisoners to be near Monterey. The most reasonable assumption is that they belong to the force near Monterey, but General A can not afford to act upon this assumption. For the march tomorrow he must consider an advance against the left flank of his column as possible.

The statement of the prisoners captured at Fountain Dale has not been verified from any other source. The capture of prisoners establishes the probable presence of their squadron. However, the capture of prisoners from a cavalry patrol does not identify the organization to which they belong with the same degree of certainty as would the capture of infantry prisoners under similar circumstances. Cavalry patrols, especially in unoccupied friendly territory, may operate at great distances from the squadrons to which they belong. If the statement of the prisoners is true, the enemy may intend to use the Western Maryland Railroad as a line of communications for the advance of another strong force. On the other hand, he may hope to drive back the left flank of the Blue army, and use the railroad as one of the lines of supply of his own main army. There is not yet

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any indication that an advance from the direction of Monterey is imminent. Under any circumstances, General A's orders provide for such a contingency by requiring him to cover the Waynesboro Turnpike and Hagerstown Road until relieved by the 20th Division at 4:00 PM, May 26.

The hostile cavalry patrols are operating in their own country and have encountered our cavalry. There is little doubt that they know of the arrival of the division at Emmitsburg. They may have discovered the original mission of the division. It is not likely that the enemy knows yet of the change in orders, but with his (apparent) superiority in cavalry, he may soon discover the direction and line of march of the division.

Little is known of the strength of the enemy with which General A will have to deal tomorrow. According to the unverified statement of prisoners, there were two battalions of infantry and two squadrons of cavalry near Blue Ridge Summit and Monterey. This force may have been materially increased by this time. Hostile cavalry is patrolling on a wide front in the mountains, but its strength is not known. There is no indication of the presence of hostile troops in the mountains in sufficient strength to make an actual attack in force on the division during its march. Neither is there any certainty that an attack in force will not be made. The best that can be said is that such an attack is not probable but that attempts to harass the column by small parties of cavalry may be expected throughout the march.

Our Own Force

The 3d Corps is threatened with an envelopment of its left flank. The plan of its commander is not known but his telegraphic order to General A indicates that the 15th Division is badly needed. Since the division may have to go into action as early as May 27, it must arrive at Seven Stars prepared for such an emergency. The whole division cannot march intact before being relieved of its former mission by the 20th Division. But no more troops must be detached than are absolutely necessary to cover the Waynesboro Turnpike and Hagerstown Road and to protect the march of the division, and these must rejoin the division as soon as possible.

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A study of the network of roads connecting Emmitsburg with Seven Stars (as shown on the 3-inch map) discloses the fact that while there are many roads in the network, there are few good routes which are entirely separate for the whole distance between the two towns. The easternmost road that can be considered is the route via the Emmitsburg Road—Gettysburg—Chambersburg Road, which is 14½ miles long. It is a good main road, straight except for the one turn at Gettysburg. The westernmost road is the route through Zora—Fairfield, thence north to 653, then via Knoxlyn and McKnightstown Station. It is 17 miles long. It is fairly level until it turns east toward Knoxlyn but runs for most of its length close under the eastern slope of the mountains. Between these two routes, all routes which connect Emmitsburg with Seven Stars by good roads pass through crossroads 558, on the Hagerstown Road south of Carr Hill. A single column will have a number of roads from which to choose as far as 558, but any two columns would have to join at 558 unless one of them marched via Gettysburg or the road junctions in or near Fairfield. There is a good road to Fairfield which runs east of McKee's Knob instead of through Zora. From Emmitsburg to crossroads 558 there are two distinct routes; the route from the western exit of Emmitsburg via Liberty Hall S. H. and Diehl's Mill; and the route from the northern exit of Emmitsburg via Clear Spring Stock Farm and McGreary S. H. (McCleary School on map 1:62500). The first of these routes is the shorter, but passes through rough, hilly country with a dangerous defile at Diehl's Mill. The second route has fewer difficult grades and the country through which it passes is more open. After leaving 558 both routes pass through Knoxlyn. By the first route, the distance to Seven Stars is approximately 12 miles; by the second, 13¼ miles.

From this study of the road system, it becomes apparent that General A's choice of roads for the march of the bulk of the division is narrowed down to two routes, the one through Gettysburg and the one via McGreary S. H. The route through Gettysburg is only about one mile longer than the other and the time required for a march over it is prob-

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ably actually shorter because it is a better road in other respects. Its use necessitates having the trains either follow by the same road or use longer and much poorer roads farther east. The principal objection to this route, however, is its great distance from whatever detachment it may be necessary to charge with the duty of covering the Waynesboro Turnpike and Hagerstown Road exits from the mountains. A march in two columns is inadvisable because of poor lateral communications. General A decides tentatively to march the division via McGreary S. H. and Knoxlyn.

The division, even without field and division trains, occupies a road space of more than 18 miles. The head of the main body will reach Seven Stars before the tail of the column leaves Emmitsburg. The protection of the division for tomorrow's march therefore resolves itself into the protection of the road for its entire length. To insure immunity from interference with the march of the division, the enemy must be kept off of the irregular line of heights extending from Zora to Wilson Hill. By accomplishing this object, General A will also carry out his original mission of covering Waynesboro Turnpike and Hagerstown Road. A flank guard is obviously necessary to prevent the enemy from reaching the line of heights.

The manner of handling the flank guard will depend to a great extent upon the action of the enemy tomorrow, and it is objectionable for General A to tie down his flank guard commander by definite orders for the dispositions of the flank guard. It is necessary, however, for General A to give careful consideration to the problem that will confront that officer, in order that the strength and composition of the flank guard may be suited to the task to be performed.

Two battalions of hostile infantry are reported at Monterey and Blue Ridge Summit. Although there is no indication that they intend to advance, at least two battalions of Blue infantry should be made available to oppose them. Since the corps commander considers the Waynesboro Turnpike and Hagerstown Road of sufficient importance to be guarded by a division, General A would not be justified in taking chances by leaving only a weak detachment in that

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vicinity for nearly a whole day. The apparent superiority of the Red cavalry may prevent timely warning of a hostile advance being received by the Blue flank guard. This disadvantage could be compensated for to some extent by placing artillery where it could cover both roads leading from Fountain Dale.

On the ground in the vicinity of hill 742, northeast of McKee's Knob, there are excellent artillery positions which would cover both the Waynesboro Turnpike and Hagerstown Road exits from the mountains and from which fire could be delivered in support of infantry defending the high ground opposite the exits. The corps order fixes 4:00 PM as the time at which the 20th Division will take over the duty of covering these exits. The same troops which are to perform this duty, therefore, cannot protect the march farther north.

Only hostile cavalry patrols have been reported farther north, but there is no certainty that these will not be followed by other hostile troops. Even a small force of cavalry could cause much trouble if in possession of the high ground around Wilson and Carr Hills. It is advisable to gain possession of this ground before the head of the division column reaches crossroads 558 on the Hagerstown Road. One battalion of infantry should be adequate to hold this ground against cavalry and, in the absence of indications of the approach of other hostile troops, General A would not be justified in detaching a larger force from his command.

At the end of the day's march, the advance guard normally forms the outposts of the command. At Seven Stars the outpost line will naturally be west of the town since that is the direction of the enemy. On leaving Knoxlyn the advance guard can reach its probable position for the night more directly by continuing north toward McKnightstown Station than by marching through Seven Stars. By taking this route it will also protect the main column in its march from Knoxlyn to Seven Stars and thus relieve the flank guard of the duty of protecting the column north of the Knoxlyn—Orrtanna road.

All of the divisional cavalry, except about a platoon with the advance guard, will be needed with the flank guard. The

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safety of the flank guard and consequently of the column depends to a great extent upon receiving timely warning of the approach of hostile forces from the mountains. In addition to patrolling the country between the mountains and the McKee's Knob—Wilson Hill line of heights, the cavalry will have to send patrols into the mountains far enough to watch all the roads for several miles west of the exits. In the face of superior hostile cavalry, this will be a difficult task.

In view of all these considerations, a flank guard consisting of a regiment of infantry, a battalion of light artillery and the squadron of cavalry appears to be the minimum force which can safely protect the column and cover the two roads mentioned in the corps order. The probability of early employment of the division in the corps line requires that the minimum force be used. Since the bulk of the flank guard will not be relieved in the vicinity of Zora until 4:00 PM, a march made partly at night will be necessary for that part of the command, but it cannot be avoided.

The mission of the flank guard is not the normal one of marching along a road parallel to the line of march of the main body. Its movements will depend somewhat upon the action of the enemy. It is impracticable to prescribe its route in the division order. The orders given its commander must clearly define its mission and call attention to such points as General A considers of special importance without restricting the freedom of action of the flank guard commander.

The march of the division will be a flank march. Since roads are not available for a march in two columns, the column must be shortened as much as possible by sending the field and division trains by the good road through Gettysburg. By that route they can reach Seven Stars in as short a time as the main body. Nothing would be gained by having the field trains accompany their units for this one day's march and they might cause great inconvenience in case of attack. By having the regiment of heavy artillery march via Gettysburg ahead of the trains, then turn off to Black Horse Tavern and await orders there, the column can be further shortened by 3 miles during part of the march.

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This will also give the regiment of heavy artillery a better road for motorized vehicles and place it in a position from which it can, in case of necessity, protect the column by its fire. The distance to Black Horse Tavern via Gettysburg is about 13 miles, or a little less than 4 hours' march at 3½ miles per hour. Provision must be made to have it covered by the flank guard by the time of its arrival at Black Horse Tavern.

After deducting the road space normally occupied by troops of the flank guard and the field and division trains, the division column will be approximately 15½ miles long. At the rate of 2¼ miles per hour, which is the best that can be counted upon in this case, due to hilly country and winding roads, it will require about seven hours for the division to march a distance equal to its length. At the same rate it will require a little less than six hours for the head of the division to march the 13½ miles to Seven Stars. The corps order requires the head of the main body to arrive at Seven Stars not later than 6:00 PM. To delay the march until there is barely time to comply with the order would require the rear elements to march for several hours after dark and this would be dangerous and also undesirable because of loss of rest for the troops. On the other hand, it is desirable that the force covering the exits from the mountains be separated from the division as short a time as possible. For the tail of the column to reach Seven Stars by dark (about 8:00 PM) the head of the column would have to start about 13 hours before that time or at 7:00 AM. By marching at that hour the division can carry out its mission and also be prepared to carry out any orders it may receive for the following day.

Since there is little danger from the direction of Seven Stars, one battalion of infantry will be ample for advance guard. A platoon of cavalry will also be assigned for reconnaissance.

In deciding the order of march of troops in the main body it must be remembered that the chief danger is from the flank and that a long unbroken column of artillery would be in a very dangerous position if suddenly attacked. This danger can best be overcome by placing some infantry be-

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tween the regiments of light artillery and by sending the heavy artillery regiment via Gettysburg. There appears no reason for any other abnormal arrangement of troops of the main body in order of march.

There must be radio communication between the flank guard and the main body and between different elements of the flank guard. The necessary radio sections are therefore assigned.

One ambulance company should be assigned to the flank guard and one to the main body.

Constant patrolling of the left flank by the observation squadron will add greatly to the security of the march. The corps order directs that the division squadron use the corps airdrome at Fairview S. H. By starting out the first planes early in the morning and then moving the remainder of the squadron rapidly by its motor transportation to the corps airdrome, continuous reconnaissance can be kept up.

DECISION

1. To march at 7:00 AM to Seven Stars via Clear Spring Stock Farm—McGreary S. H.—Knoxlyn, sending the regiment of heavy artillery via Gettysburg to await orders at Black Horse Tavern.

2. To detail one regiment of infantry, one battalion of light artillery and the squadron of cavalry (less one platoon) as flank guard to cover the Waynesboro Turnpike and Hagerstown Road exits from the mountains until 4:00 PM, and to protect the march of the column as far north as the Knoxlyn—Orrtanna road.

3. To detail one battalion of infantry and one platoon of cavalry as advance guard, sending it direct toward Mc-Knightstown Station from Knoxlyn.

4. To send the field and division trains (less the necessary sanitary units) to Seven Stars via the Emmitsburg—Gettysburg—Chambersburg road.

Second Requirement:

15th Div,
EMMITSBURG, MD.,
25 May 19, 8:00 PM.

FIELD ORDERS }
No 5 }

Maps 1:62500, Fairfield, Gettysburg and Emmitsburg Quadrangles.
1:21120, Fairfield, Knoxlyn, Gettysburg, Sabillasville and Emmitsburg Sheets.

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Troops:

(a) Advance Guard:
Maj B Comdg
1 plat Tr A, 15th Cav
1 bn 59th Inf

(b) Main Body—in order of march:
1. Co A, 15th Engrs
15th F Sig Bn (less det)
59th Inf (less 2 bns)
45th MG Bn
44th LA (less 1 bn)
1 bn 59th Inf
15th FA Brig (less 44th LA and 43d HvA)
29th Brig
15th Engrs (less Co A)
43d MG Bn
57th Amb Co
2. 43d HvA

(c) Left Flank Guard:
Brig Gen C, Comdg
3 Radio Secs
1st Sq 15th Cav (less 1 plat Tr A)
30th Brig (less 59th Inf and 45th MG Bn)
1 Bn 44th LA
58th Amb Co

1. A strong hostile column of all arms was reported 15 miles northwest of ARENDTSVILLE at noon today. Hostile cavalry patrols were reported west of ORRTANNA and at MOUNT HOPE today. Red prisoners report one battalion Red infantry at BLUE RIDGE SUMMIT, one battalion at MONTEREY and two squadrons 10th Red Cavalry near those towns today.

Our 3d Corps is holding the line of CONEWAGO CREEK with its left near BIGLERVILLE. The 20th Division will arrive at EMMITSBURG tomorrow and at 4:00 PM will relieve this Division of covering WAYNESBORO TURNPIKE and HAGERSTOWN ROAD.

2. This Division will march tomorrow to SEVEN STARS as reserve, 3d Corps.

3. (a) The Advance Guard will clear the northern exit of EMMITSBURG at 7:00 AM and will march via 523—552—520—532—485—CLEAR SPRING STOCK FARM—H. E. BOYD—KNOXLYN—GAHNEY toward MCKNIGHTSTOWN STA. It will gain contact with the corps cavalry toward CASHTOWN.

(b) (1) The main body (less the 43d Heavy Artillery) will follow the Advance Guard at 800 yards distance to KNOXLYN and then march via 561 and WILSON to SEVEN STARS.

(2) The 43d HvA will clear road junction west of FLAT RUN on EMMITSBURG ROAD at 7:30 AM and march via EMMITSBURG ROAD—GETTYSBURG—HAGERSTOWN ROAD to BLACK HORSE TAVERN where it will await orders.

(c) The Left Flank Guard will march at 6:00 AM and will cover the march of the main body as far north as the KNOXLYN—ORRTANNA road by keeping the line of heights from MCKEES KNOB to hill 922 north of WILSON HILL clear of the enemy. It will prevent any advance of the enemy by the WAYNESBORO TURNPIKE and HAGERSTOWN ROAD exits from the mountains until relieved by the 20th Division at 4:00 PM. Road junction 688 south of WILSON HILL will be covered by 10:30 AM. The exits from the mountains as far south as ST. MARYS COLLEGE will be observed by patrols. The 1st Squadron 15th Cavalry will come under the orders of the Left Flank Guard Commander at 5:00 AM. Upon completion of its mission the Left Flank Guard will rejoin the Division via KNOXLYN.

(d) The 15th Field Signal Battalion will maintain radio communication with the Left Flank Guard.

(e) The 1st Observation Squadron from 5:00 AM will keep up an active reconnaissance on the left flank as far west as the line FOUNTAIN DALE—MOUNT HOPE. It will use the 3d Corps airdrome at FAIRVIEW S. H., to which point the

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squadron will move by the EMMITSBURG—GETTYSBURG road, starting at 6:00 AM.

(x) 1. The platoon, Troop A, 15th Cavalry, on outpost duty will be relieved in time to report to Advance Guard Commander at 6:00 AM. Remainder of troops on outpost duty will be relieved at 7:00 AM and will rejoin their regiment.

2. Halts will be made for 10 minutes each hour commencing on the hour. Radio to set up at that time.

4. Field trains and Division Trains (less detachments of Sanitary Train) will march under the orders of Commanding Officer, Trains, by the EMMITSBURG—GETTYSBURG—CHAMBERSBURG road at 8:00 AM (see Administrative Orders No 10).

5. Division Headquarters will close at EMMITSBURG at 10:00 AM, 26 May 19 and open at SEVEN STARS same date and hour.

A,
Maj Gen.

Distribution:

CG 3d Corps
CG Division
Division Staff
CO 1st Sq 15th Cav
Outpost Comdr
Adv Gd Comdr
All Brig and Regtl Comdrs
CO 15th F Sig Bn
CO 15th Obsn Sq
CO Tns
CG 20th Div

(C-1) REAR GUARDS

Rear Guard Action

MAJOR R. MCCLEAVE,
Infantry

A previous chapter covers the general principles of rear guard formations. This chapter will summarize briefly the main points of rear guard action to pave the way for the discussion of a concrete case.

The main purpose of rear guard action is to insure the safe and uninterrupted retirement of the main body. The clean "get-away" of the rear guard, while important and desirable, is secondary in importance to the escape of the main body. Many historical examples exist of the main mission, the escape of the main body, being accomplished only at the expense of the practical destruction of the rear guard. The rear guard is to accomplish its mission of delaying the enemy by every means except fighting, but it will be prepared to fight with all the intensity necessary, even if it involves its own destruction, to insure the retirement of the main body.

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The two main classes of rear guards are strategical and tactical rear guards—strategical rear guards, consisting of a heavy body of troops, often as much as a corps, covering the general retirement of the army, and tactical rear guards, smaller in size, directly covering the rear and flanks of retreating columns. This chapter deals only with the tactical rear guards.

The general composition of rear guards of all arms is infantry, cavalry, artillery, auxiliary weapons and air service. In this class of action the infantry arm is the basic element and forms the basic resisting force upon which the others fall back when too hard pressed. The infantry has its capabilities increased by the power of extended reconnaissance of air service elements, the mobility and wide range of action of cavalry, the direct and powerful support at long range of the artillery arm, the augmentation of long range infantry fire by use of the auxiliaries, machine guns, trench mortars and one-pounders. As the normal action of rear guards consists in the retirement by echelon, after being seriously engaged, we find that the assignment of artillery to the direct support of infantry and the attachment of machine guns, trench mortars and one-pounders to the infantry does not differ, in principle, from similar assignments in offensive and defensive action in general. There is a minor point of difference, however. It is a common practice, due to the mobility of cavalry and artillery, to assign artillery to the direct support of cavalry, holding the infantry back entirely out of the action to the greatest extent possible, and using it farther to the rear as supporting points to the cavalry and artillery action. This practice is the result of the slow rate of march of infantry and the difficulty of withdrawing it from action when once heavily engaged. Any distances assigned the rear guard refer to march dispositions only. The instant delaying actions begin, all question of exact distance ceases; the aim being a happy medium between too great a distance, endangering the rear guard, and too short a distance, endangering the main body.

Remember in the discussion that follows, the principles enunciated heretofore in this book, in the *Infantry Drill*

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Regulations and in *Field Service Regulations*, that rear guard action consists largely of offering battle and then refusing it, when the enemy accepts by deploying; of forcing deployment at long range, the deployment, and not the losses, being of importance; of counter-attack if the pursuit is carelessly made, or when necessary for the protection of the rear or flanks of the main body; of stubborn resistance in unusually strong defensive positions; of constant consideration and use of the ground for successive positions, with advance reconnaissance of positions and routes; of flank observation and protection, as the main danger is from outflanking operations; of constant communication between the main body and the rear guard. "The commander of the rear guard has three grand objects to fulfill: first, to fall back and lose as few men as possible; second, to retard the main body as little as possible; and third, to stop the enemy as much as possible."

The following quotation from Marshal Foch in his *Principles of War*, published in 1906, is worthy of close attention:

> "That example shows how rear guards fight when retiring, inspired by the double duty of observing the enemy and delaying his approach. They delay the enemy by compelling him to assume battle formations, to assemble and deploy in order to use his superiority for an enveloping movement.
>
> "The nature of the ground and the distance from the body protected determine of course the length of the resistance; and from the resistance offered will depend the losses sustained. For that reason, rear guard actions are to be avoided when the necessary time can be obtained in another way.
>
> "Normally and logically, we must only seek therefore to hold the enemy and to delay him by three methods:
>
> (1) By enforcing prudence from him, and therefore slowness of advance.
> (2) By prolonging as long as caution permits, but never later, local resistance.
> (3) By retreating as slowly as possible.
>
> "That retreat, as slow and deliberate as possible, must allow the troops to reorganize and take up new positions along the road. It is necessary therefore, that the local resistance and the movement of retreat prolong one another, and that the struggle only ceases at a given point when it can be repeated, with equal method, at a number of other points.
>
> "A rear guard can delay the enemy in proportion to its own strength; the opponent, to enforce its retreat, will need more time to develop the necessary means of doing so.
>
> "It is less by their actual actions than by the mere fact of their presence, less by fighting than by constantly threatening to fight, that rear guards fulfill their mission. They do not prevent

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the enemy's action but, like a pendulum, they moderate and govern its movements, and thus permit of ascertaining its mechanism and extent.

"We have seen the difficulties of a rear guard action:

(1) Danger of being turned; once turned, the protective troops no longer guard the main body; they may, moreover, be cut off.

(2) Danger of letting the enemy come to close quarters, which makes it difficult to disengage all the troops.

(3) Necessity of battle by fire and at long range, to act on the enemy from afar.

"The employment of troops that fulfill these various conditions generally necessitates the occupation of each successive position by a large proportion of artillery, usually all that is available. A sufficiently large quantity allows the troops to reorganize and take up new positions early, while the remainder of the infantry prepares and carries out the occupation of the second position.

"A good deal of cavalry is also needed to detect and parry enveloping movements. It generally constitutes the reserve at every position occupied.

"In this manner, protective troops consisting of six battalions, six batteries and six squadrons will generally employ on the first position their six batteries, two to three battalions and their six squadrons, while the other battalions organize the second line of resistance, where the artillery will join them at the trot when it abandons the first line. The cavalry finally protects the retreat of the last infantry units from the first position and afterwards resumes its function of general reserve.

"To protective troops maneuvering in retreat to guard the main body, just as to protective troops advancing to seek and hold the enemy, much cavalry is therefore necessary, supported by artillery and infantry.

"The proportion of the various arms to be used varies, however, with the distance from the main body. A rear guard at a short distance will increase its means of resistance (infantry and artillery) and decrease its cavalry; because information at close range is of little value, and because the space available allows little maneuvering in retreat, compelling battle therefor.

"In either case, if the maneuver be ready when the enemy appears, the battle begins, and the protective troops are reinforced as much as possible by troops capable of prolonged action; masses of artillery. Protected by that first disposition, the maneuver for the battle begins."

Note his general recommendations:

First: The detachment of a part of the cavalry to watch the flanks and flank roads. It is not uncommon to attach a small fraction of the artillery strength to stiffen this flank cavalry.

Second: Considering the main rear guard less the above detachments, he recommends the use in each successive position of all or a large proportion of the artillery, all the cavalry and one-half of the infantry.

Third: The successive retirement from each position, first of the artillery, which retires rapidly and goes into po-

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sition to support the other echelon. Note here that all the artillery is used in direct support of the infantry echelons successively and does not remain assigned to the support of any particular infantry element. This would require a general direction to this effect to the artillery commander in the original order. The second element to retire from each position is the infantry, covered by fire of dismounted cavalry; this infantry fraction retiring completely past the other infantry echelon and taking up a new position, to be reinforced later by the artillery and then by the cavalry when the preceding position is given up. The last element to retire from each position, you will note, is the cavalry. Aside from the undoubted authority of the writer, the above general method of handling the three arms in rear guard action is so clear and logical that it may well be adopted as the method to be striven for in any rear guard action. There will be exceptions according to individual cases, so that the individual estimate of the situation is still necessary. Accident of ground, size of positions, nature of pursuit, necessities of the main body, many considerations may force modifications. Marshal Foch himself would be the last to give a rule as applicable to every case. Note his use of all available force in every position, the retirement of part of the infantry, to a new position being a necessity of successive positions.

He does not mention the auxiliary weapons, the machine guns, trench mortars and one-pounders. These are properly considered as infantry weapons, and in rear guard actions should be attached to infantry elements for their direct support both for control and automatic dispositions in depth as successive echelons retire. The possibility of using these weapons, particularly the machine guns as Marshal Foch recommends with reference to artillery, all of them or the greater part supporting each echelon in turn, may well be considered.

He does not mention the air service, which like the minor auxiliary weapons, has been a development of the World War. In retreat, the air service of the division will have two main functions, observation of the main and flank roads, and assistance to the artillery in observation and fire

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direction. Hence, there must be a division for these main purposes. Suppose we assign one flight to the rear guard for artillery fire observation and direction and two flights under divisional command for observation to the rear and to the flanks. Observation without reports will be of no avail; successive divisional command posts along the route designated in advance, and with the dropping ground plainly marked with the divisional panel will be a necessity. If the planes have radio, the messages should come in the clear for speed of action. The advantage of speed of action through fire concentrations will accrue to us rather than to the enemy, who must first intercept, possibly translate and deliver the message, and then by maneuver change his dispositions to avoid danger.

With reference to handling attached engineers the following may be quoted:

> "A detachment of engineers to create local obstructions, destroy bridges and viaducts, fire villages, etc., must march well in advance of the other troops. Sufficient time is rarely allowed for works of destruction. In the invasion of 1870 the retiring French forces left the bridges intact from the Saar to the Meuse. The railway tunnels in the Vosges, though sometimes mined, were never destroyed. The intact bridges over the Saar led to Spicheren; those over the Moselle to Rezonville and St. Privat. In order to delay a pursuing enemy roads are to be blocked, bridges destroyed, etc., wherever possible. This work can be more thoroughly done and time and force saved, by sending forward in carriages the pioneers or other troops destined for its execution."

It is customary to march the engineers at the head of the reserve with a small detachment in the rear party. By this method the time of march from the tail of the main body to the head of the rear guard is lost. The main force of the engineers supplied with motor transportation for the entire force should follow the main body without distance, selecting and preparing the obstructions and demolitions, a small detachment being left to execute the actual demolition after the passage of the support or rear element. The actual demolition should not be left to the small detachment with the rear party, which should be for emergency work. In this way you gain the maximum time for preparation, insure the execution of the demolitions and gain mobility for the engineers. The modern development of motor transport would seem to make this mode of handling the engineers perfectly feasible, as well as desirable.

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(C-2) REAR GUARD ACTION—MAP PROBLEM

MAJOR R. MCCLEAVE,
Infantry

General Situation:

Maps: General Map, Vicinity of Fort Leavenworth, 1" = 15 miles, Fort Leavenworth and Vicinity, 1:21120, Leavenworth, Lansing and Boling Sheets, Geological Survey, 1:62500, Leavenworth and Vicinity.

Kansas (Blue) and Missouri (Red) are at war.

The 1st Blue Corps, thrown forward to cover the Blue mobilization near Topeka, after being beaten in battle east of the Missouri River, gains the west bank of the line Leavenworth—Kickapoo by a forced march of 12 to 15 miles. All bridges are destroyed after completion of crossing at 4:00 PM.

The 1st Division, the right (south) division of the corps in the retreat, is concentrated for rest and reorganization in the open ground west of Leavenworth.

Special Situation on June 1, 1919:

The 1st Brigade in Leavenworth is holding the river bank along the eastern limits of that city.

At 7:00 PM the commanding general, 1st Brigade, receives the following message from the division commander:

1st Division,
PILOT KNOB, LEAVENWORTH, KAN.
1 June 19, 6:45 PM.

MESSAGE No. 25
How sent: Motorcyclist.

1. The Red Army is approaching LEAVENWORTH from the east in strength. The air service reports ponton trains opposite SOLDIERS HOME, LEAVENWORTH, and FORT LEAVENWORTH.
   The 1st Blue Army is moving from TOPEKA toward EASTON.
   Our corps continues its retreat at 10:00 PM.
2. This division retires with its main column on the LECOMPTON ROAD and smaller detachments on the roads immediately north thereof, tails of columns to clear the heights west of LEAVENWORTH by 3:00 AM. Trains have already moved west.
   The division is badly disorganized and movement will be slow.
3: Your brigade, with the 1st LA, 1st Sq 1st Cav, Co A 1st Engrs, 4th Amb Co and 1st Obsn Sq will form the rear guard and will cover the rear of the division on the LECOMPTON ROAD and prevent parallel pursuit on our right flank. Attached elements are now at your disposal. Destroy all bridges. Hold your position covering the river till just before daylight, when you will retire to the heights west of town, enemy to be held east of the hills until 8:00 AM.
   All other details at your discretion.

By command of Major General X:

CS,
Chief of Staff.

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The student should here outline on his map the successive positions along Lecompton Road:

1. Pilot Knob and ridge north of road.
2. Black—Sanger—Rosendale (about 1 mile west of Pilot Knob).
3. 1085—Maasz.
4. Mrs. Norris (about ½ mile east of 1101).
5. H. Stillings (1101).
6. Nower ridge and orchards just south of J. Rhodes (about ¾ mile east of 1066).
7. K. Smith (1066).
8. L. Smith (about ¾ mile west of 1066).
9. Nichols (about ½ mile east of 1036).
10. H. Welch (about ½ mile west of 1036).
11. Bethel Church.
12. Guerillis—J. Shear (about ½ mile southwest of Bethel Church).
13. Thompson H. (west of Big Stranger Creek).

Locate the east and west road to the south through Giese's Store (at 940)—C. Rodenburg (west of 993) and also the position of High Prairie S. H.

Brigadier General A's outlined estimate of the situation:

Mission: Usual mission of rear guards and guarding left flank.

Enemy: Aggressive, victorious, preparations to cross at three distinct points. Will be delayed by the river.

Our own troops: Defeated, disorganized, tired, slow moving. Continuance of retreat to gain protection of 1st Army west of Big Stranger. Length of columns. Probability of delay. Will clear the defile west of Leavenworth by 3:00 AM.

Courses open to enemy: Straight on pursuit probable. Parallel pursuit probable.

Courses open to Brigadier General A: Action indicated by division commander. Necessity for orders to carry this out. Advisibility of determining on the first two or three positions west of Leavenworth. Further action to depend on circumstances.

Terrain: Lecompton Road; well suited to defensive operations along entire route. Successive positions easily marked on map. Possibility of blocking road (woods, bridges). Roads dangerous for parallel pursuit. Giese's Store—Rodenburg—Vallav S. H. road and roads north of this and first road south of it.

Decision:

1. To hold the river line with detachments of infantry, machine guns and trench mortars, till 4:00 AM.

2. To detach two troops and one battery to the vicinity of Giese's Store at once as right (south) flank guard. (This flank guard might well have had infantry with machine guns assigned to it. It is purposely made weak in order to lead up to different phases of rear guard work.)

3. To direct immediate reconnaissance of artillery positions on line Black—Sanger—Rosendale to be occupied as soon as division retirement permits.

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4. Remainder of force to take up a position in readiness prepared to follow the division or to reinforce the outpost as needed.

5. The remaining two troops to cover infantry retirement from river and delay enemy's passage till 4:30 AM, then to Pilot Knob and heights north thereof.

6. To attach one flight air service to the artillery, the two remaining flights to begin intensive reconnaissance at daylight.

The order as issued:

1st Brigade,
LEAVENWORTH, KANSAS,
1 June 19, 8:00 PM.

FIELD ORDERS }
No 21 }

Maps: General Map, 1" = 15 miles and 1:21120, Lansing Sheet.

Troops

(a) Reserve—in order of march:
Co A 1st Engrs (less 1 plat)
4th Amb Co
Combat Trs 1st LA
1st LA (less Btry A)
2d Inf
Hq 1st Brig

(b) Support:
1st Inf
2d MG Bn
1st Sq
1st Cav (less Trs C and D)
1 plat Co A Engrs

(c) Right flank guard Trs C and D 1st Cav
Btry A 1st LA

(d) 1st Obsn Sq

1. The enemy is concentrating on the east bank of the MISSOURI with preparations to cross at FORT LEAVENWORTH, LEAVENWORTH and SOLDIERS HOME.
Our 1st Blue Army is moving toward EASTON.
Our corps continues its retreat. Our division (less rear guard) retires via the LECOMPTON ROAD, and will clear the heights west of LEAVENWORTH by 3:00 AM.
2. This brigade reinforced by the 1st LA, 1st Sq 1st Cav, 4th Amb Co and 1st Obsn Sq forms the rear guard.
3. (a) The reserve under the direction of Col A will be massed at once in a position in readiness at the western exit of LEAVENWORTH, east of PILOT KNOB, engineer, sanitary and artillery elements just west of the railroad tracks, infantry units east thereof. The reserve will follow the rear of the division without distance to the BLACK—ROSENDALE ridge and there take up a defensive position covering all approaches from the east.

(b) The support will maintain the present outpost dispositions till 4:30 AM, retiring at that hour via the LECOMPTON ROAD, covered by the cavalry, which will maintain position covering the river till 5:00 AM, and then proceed to occupy PILOT KNOB and ridge north thereof to delay hostile pursuit from LEAVENWORTH, retiring later to the BLACK—ROSENDALE position.

(c) The right flank guard will proceed south at once to vicinity of SOLDIERS' HOME, prevent hostile crossing, and will retire at 5:00 AM westward via GIESE'S STORE—C. RODENBURG road, covering the right (south) flank of this brigade, and reconnoitering roads immediately north and south of its line of march.

(d) Air service will begin at daylight reconnaissance of roads in rear and on right (south) flank as far as MISSOURI RIVER. One flight will be assigned to the artillery brigade for fire observation and direction.

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(x) The artillery and infantry reconnaissance of routes and positions will be made at once.
4. Field trains accompany the division field train.
5. Brigade Command Post: 1st: LEAVENWORTH POST OFFICE, till 4:00 AM, 2d: ROSENDALE farm house at 346.2—744.2.

Signature.

Brigadier General A does not bother his mind with questions as to whether his decision is the best course of action. He is concerned first, with whether it is a reasonable and feasible military plan under his orders. This decided in the affirmative, the details will occupy his time. In warfare, as opposed to theoretical study, a reasonable, feasible plan, resolutely adhered to, with clean execution of details, is the best that can be expected of any commander. Waste of time in groping for the ideal and the best possible plan of the vast number that present themselves is a mistake.

What has he in mind? His first real position for rear guard action is the Black—Sanger—Rosendale position. Pilot Knob is a delaying position only and will not be strongly held. The cavalry at Pilot Knob will assist the artillery in delaying any hostile advance west of Leavenworth, and will retire, as soon as a strong hostile deployment is evident, to the west of the Black—Rosendale position, in reserve.

The first elements to reach the Black—Rosendale position will be the engineers, artillery combat train and 4th Ambulance Company which will gain a normal location in rear of each successive position as they arrive. The wounded in each main position can be taken care of; those in advance positions must be left to the enemy.

General principles illustrated:

1. Note the composition of the rear guard; all arms, all weapons, engineers, sanitary troops and air service as a usual composition.

2. Holding and reinforcing the outpost line, to permit the columns of route to move out. The position in readiness of the reserve.

3. Covering the withdrawal of the outpost. (The town of Leavenworth interferes with the taking up of a position for this purpose, but will hinder pursuit.) The Pilot Knob position will cover the outpost retirement west of town.

4. This position is a wide front for a very small force—two troops of cavalry eventually. Extended fronts are common to rear guard action where determined resistance is not sought. Note the converse, that attacks against such positions should be heavy and concentrated, with turning or enveloping action.

5. The artillery fire from Black—Rosendale will cover the cavalry retirement. The cavalry retirement will not be by the

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main road which is a defile. Such retirement must not blank the fire of the next position.

6. The Black—Rosendale position has a broad front, a good screen to conceal the strength. It has obstacles and a defile in front of it, has a good "get-away," and has strong supporting positions in rear (the Maasz ridge and Mrs. Norris ridge). All these are desirable in rear guard actions.

The Black—Rosendale position is unusually strong, suitable for determined defense if the division is delayed in the initial stages of the march, which is not likely under the circumstances. The 1st Infantry is already ordered to the Black—Rosendale position and the 2d Infantry, avoiding the road, may well retire to Mrs. Norris' ridge about a mile in rear leaving the Maasz ridge which is only 700 or 800 yards in rear for a secondary position for the cavalry. Officers' patrols, to examine and mark routes and plan the occupation of these rear positions, should be sent out at once, without waiting for hostile action. General Clery, an English authority, says of this:

> "In work of this kind, the great art is to know when to retire. For, to fall back too soon would be but half carrying out the important duty engaged in, and prolonging the defense beyond a certain point would be to endanger the safety of the rear guard."

The enemy may well be delayed by the river passage to such an extent as to make no fighting necessary in these first positions, in which case they would be abandoned without regret, notwithstanding their strength. Merely for purposes of illustration we will consider that he crossed in force by 8:00 AM and is forced to a deployment just west of Leavenworth, the Blue action in the first positions proceeding as indicated above. What can Brigadier General A expect of the Reds with reference to the Black—Rosendale position? Will they make a determined attack along the main road? Decidely not. They will clear the Pilot Knob position without difficulty, but will avoid the defile and make either a turning movement or an enveloping attack against one of the flanks. Recall the rear guard actions of Sherman's march to the sea. Only once did he make a head-on attack (at Kenesaw Mountain); all other positions were systematically turned. Even in small commands, a turning or enveloping movement will be commonly attempted, hence the importance of watching the flanks, and falling back promptly if these are threatened.

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Imagine the following events: The enemy deploys in force west of Leavenworth. This marks the departure point of the Blue artillery which retires at once by echelon to the Mrs. Norris position, to support the 2d Infantry. The 1st Infantry holds on till the enemy occupies Pilot Knob. When advance against the Blue left (north) flank continues, the 1st Infantry promptly decamps enroute for the Nower ridge via ravines and routes that will not blank the 2d Infantry and artillery, leaving the two cavalry troops to continue dismounted fire action from the orchards near the main road. The Stillings position just in rear of Mrs. Norris ridge is too close and will be used like the Maasz ridge in rear of Black—Rosendale for a secondary cavalry delaying position.

Information is needed at this point regarding the distance of these successive positions. With a small force, thrown back say 1500 yards in rear of the main body, the distances must be short, a matter of a few hundred yards sufficing; also infantry heavily engaged must be disengaged by fire from a position in rear within effective infantry range, retirements being in deployed formations. On the other hand, with a powerful rear guard able to hold the enemy off and force long range deployments, the distances should be as long as the safety of the rear element and the safety of the main body will permit, retirements being made in columns of route. Circumstances govern in this as in most military situations.

During one campaign in the Peninsula War, Marshal Ney, with 5000 men, by taking up successive positions, held the Duke of Wellington to a four-mile advance for the day, the English having 30,000 men in all. It is plain that his successive positions must have been at short distances, closely supporting each other. During this day, the French once deployed in a single strong position, forcing a general English deployment.

The method of handling and retiring the artillery under the circumstances of this problem will be by echelon and not simultaneously. The cavalry remains in the Black—Rosendale position till further delay would be too dangerous, when it retires and repeats the maneuver on the Maasz ridge under cover of which delaying action the 2d Infantry gains the

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Nower ridge, and the Black—Rosendale ridge is covered by our artillery from Mrs. Norris. Note the necessity for visual signals to indicate to the artillery that our cavalry has abandoned the position. We can expect this artillery fire to be heavy as it will be comparatively short. The cavalry forced out of the Maasz ridge position, retires rapidly around the flanks of the Mrs. Norris ridge to a reserve position prepared to dismount and hold this position as the last Blue element, when the infantry retires. The normal retiring action follows in this position as before and this method of retirement may well continue throughout the day.

To introduce new phases of the subject we will consider a special situation. While holding the Nower position, and with the 2d Infantry falling back from the Mrs. Norris ridge, the division commander notifies General A that the Big Stranger bridge is down, extra bridges are being constructed, there will be a three-hour delay, the division is badly congested about Bethel Church, that the rear guard will take a defensive position in its present vicinity for determined resistance. This is no case of successive retirement. It involves the taking up of a defensive position best suited for the purpose of stubborn defense. His force may well be destroyed, but this is not of vital importance. The division must get across the Big Stranger and must have time to do it.

He decides rapidly that two positions are open—the Nower ridge on which he is partially deployed or the K. Smith ridge immediately in rear. (The student should make his own decision.) Probably it is best to fight on the Nower ridge, from this moment giving up no foot of ground till forced out. Staff officers may well stop the 2d Infantry and direct it to extend the line of the 1st Infantry to the left, prepared for stubborn resistance. Brigadier General A would not bother his head about the regimental dispositions, expecting each to put two battalions in line and to hold a reserve. He would direct the cavalry, when forced from the Stillings ridge, to retire to the orchards south of the 1st Infantry and cover his right (south) flank in defensive action.

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If the artillery is on the Nower ridge, Brigadier General A would direct the artillery commander to retire his artillery by echelon to better artillery positions in rear from which to cover the front of the positions. Brigadier General A would insure that his brigade machine gun battalion is placed in position for long range fire to the front. One battalion of infantry would be directed to the K. Smith ridge in rear as brigade reserve, and to support any retirement later.

A few minutes suffices for such planning, but complete silence and freedom from interruption or confusion in the vicinity of the general would be essential. He would be searching not for the ideal or the best, but for a rational and practical method of carrying out his immediate mission. He does the first thing that occurs to him that seems to completely "fill the bill," after a rapid estimate of the situation. Students of theory will later, after months of study, criticize everything that is done, but the general has minutes instead of months of study; action instead of theory is his responsibility and the rear guard commander must combine the qualities of judgment and action in greater measure than is demanded in any other class of action.

Note the cavalry position in the orchards. It is a flank position with respect to the main road. One would not be open to criticism if a battalion of infantry had been thrown into that position to hold on when the main force is forced or ordered to retire. A flank position is particularly advantageous in rear guard actions when the "get-away" exists with convenient means of rejoining the force. A due west retirement of this flanking force will later on automatically bring it back to the road which bends to the south. Had the road turned to the north, the general would seek the flank positions on that side.

Summary of Principles

1. In retiring do not blank the next position. Retire past a flank. Advance reconnaissance of routes and positions are the duty of battalion and regimental commanders.
2. Positions close in rear should be used as secondary and not main positions.
3. The enemy can be expected to envelop or turn the positions. Watch your flanks.

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4. Determined defense is only indicated when there is an emergency in the main body or when the pursuit is rashly and poorly handled. Counter-attack is made not by advance against the enemy, but by concentration of your force for intense fire action.

5. Flank positions are advantageous, when they permit "getaway" and rejoining.

6. If determined resistance is called for, get the maximum strength into it. It may be a fight to a finish.

7. In testing positions apply the usual considerations for a defensive position, field of fire, security of flanks, covering screen, obstacles, lines of retreat, etc. Unusual extension of the front is permissible.

While the troops of the rear guard are taking up positions, a message from the flank cavalry at High Prairie S. H. informs Brigadier General A that they are almost exhausted, that a column of infantry 1½ miles in length is moving west from Giese's Store with head one mile west of Rodenburg, that he feels that he cannot delay them seriously any longer. What should General A decide on this special situation?

This column must be held. He has a battalion of infantry in reserve and decides to move it south to reinforce the two troops and one battery at High Prairie S. H. He notifies the flank detachment commander of the reinforcement. He notifies the squadron commander to hold his position and attack the column promptly in flank upon the arrival of the infantry. He orders an attack with a battalion of infantry, two exhausted troops and one battery upon at least a regiment of infantry. It is a necessity for the safety of the division and to insure against its retreat being jeopardized. He does not attack except when necessary, but will make any attack that is necessary. Well handled, a battalion of infantry will stop or seriously delay this Red regiment. He will also direct his artillery commander to open fire on the hostile flank column and to interdict the road. While performing his own task, he will assist his subordinates in theirs. If this southern column were several miles in length, he would have to consider dividing his force, moving a regiment with artillery perhaps to the southern road or to a flank position where they could move to his assistance or against the parallel pursuit, as required. It would be a matter for judgment combined with determination to carry out the mission at any cost. Remember Ney at Beresina, when

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asked for the location of the rear guard, replied: "Sir, I am the rear guard"—the rear guard had filled its mission at the cost of its own destruction. This is, of course, the extreme case.

The above situation with respect to the Big Stranger bridge covers the case of a passage of a defile by both main body and rear guard. Even with the bridge repaired, it is a defile.

First, the enemy must be held off till the main body gets through.

Second, in moving the rear guard over the river, a strong position such as the J. Guerillis ridge east of the river must be occupied and stubbornly held till the advance infantry echelon and the artillery have taken position on the far side, or on the heights or in the case of a mountain defile to cover the retirement of the 2d echelon. The cavalry action especially is important as many instances can be cited of the precipitate retreat of the cavalry throwing the infantry into complete confusion in the defile. Always in case of a defile, a position with wide frontage covering the exit should be sought, the enemy being forced into a difficult fight for maneuver space.

Assume that at some point during this retreat the enemy fails to come on, and touch is temporarily lost. The cavalry particularly, supplemented by the air service, must at once begin intensive reconnaissance to the rear and to the flanks to regain touch. To counter his movements it is necessary that they be determined. In such case if other conditions permit, the rear guard less the cavalry, retires unhampered till the enemy regains contact.

The above discussion brings out the main points of rear guard action. Commanders should follow the methods outlined as closely as conditions permit. The student should not be confused by the following discussion of a few exceptions.

Some authorities advise the retirement of the cavalry as the first element. This may be necessary on account of the difficult ground in rear, or when the infantry is so closely engaged as to be compelled to retire by echelons at close distance. The assignment of artillery to the direct sup-

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port of the separate echelons may at times prove the best method. This might be the case where the artillery assignment is unusually heavy and road conditions bad. In any case remember that the artillery fighting batteries only would be held in action, all trains, etc., being kept well in the rear. The divisional machine gun battalion if determined defense is necessary will often be assigned to the rear guard on account of its mobility of movement. The field trains will accompany the field trains of the division, and will not be with the rear guard.

The verbal orders will cover not more than the first two main positions; beyond that would be planning too far in advance. The brigade command posts will be centrally located, preferably along the main route. The orders for the successive retirements will be very brief, and ordinarily verbal. In rear guard actions a separate commander for each main echelon is an assistance, freeing the rear guard commander for general control and avoidance of details.

Reconsider the very first situation for emphasis; the stretching out on the road of the main body. The covering action of the rear guard at this time is one of the most difficult of military maneuvers, being ordinarily effected by the reinforcement of the outpost. This body forms the support later, while the troops composing the reserve of the rear guard are held in such a position of readiness as to promptly follow the main column to the first main rear guard position, or to reinforce the outpost on its line of resistance. Note particularly that in this first situation, the entire rear guard must be prepared to take up its first holding position in the direction of the enemy, that is, along the outpost position. Only exceptionally will the rear be covered by so formidable an obstacle as the Missouri River.

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(C-3) ARTILLERY IN A REAR GUARD ACTION—MAP PROBLEM

MAJOR L. J. MCNAIR,
Field Artillery

The subject of this discussion is the employment of the artillery of the rear guard in the same situation as given above.

Upon receipt of the rear guard commander's order, or that of the reserve commander if the latter issued one, Colonel E, commanding the 1st Light Artillery, assembles his battalion commanders, his staff, and Lieutenant X, the senior battery combat train commander of the regiment (excluding Battery A). At 8:30 PM, Colonel E issues to the assembled officers a verbal order which, reduced to writing, would be as follows:

1st LA,
LEAVENWORTH,
1 June 19, 8:30 PM.

FIELD ORDERS
No —

Maps: 1:21120, Lansing and Boling Sheets.

1. The enemy is concentrating on the east bank of the MISSOURI RIVER with preparations to cross at FORT LEAVENWORTH, LEAVENWORTH and SOLDIERS HOME.
   Our division retires via the LECOMPTON ROAD, the main body clearing the heights west of LEAVENWORTH by 3:00 AM.
2. This regiment is with the rear guard.
3. (a) The regiment (less Btry A) moves with the reserve to a position west of the BLACK—ROSENDALE ridge to cover the approaches from the east, and will be ready to start at 2:30 AM tomorrow.
   Battery combat trains, under Lieut X, will follow the 4th Amb Co.
   Firing batteries will follow the grouped combat trains, 2d Bn leading.
   Battalion commanders will accompany me on reconnaissance in 20 minutes.
   (b) Btry A is with the right flank guard, and will report at once to Capt C, 1st Cav, for orders.
4. Field trains accompany the division field trains.
5. Messages to ROSENDALE farm house after 2:30 AM.

E,
Colonel.

Distribution:
Staff, bn comdrs, Lieut X, Col A, Brig Gen A.

Colonel E directs the lieutenant colonel with his orderly and a courier to report to Brigadier General A at once as

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Colonel E's representative until General A has established his command post at Rosendale farm house.

Discussion

Colonel E's first concern is to give his regiment early notice of the mission for the following day; after this is done he has the balance of the night to reconnoiter and prepare for the occupation of the first position for tomorrow's action. The exact position of the regiment and the combat dispositions are not of immediate concern to the regiment.

General A's order shows clearly that nothing is expected of the artillery during the night or prior to the occupation of the Black—Rosendale ridge. While it is desirable that Colonel E be in close touch with General A, this is not as important at the present moment as the installation of the regiment in the position ordered and the complete organization of Colonel E's command post at the Rosendale farm house, the ultimate command post of General A. Colonel E provides, however, for close co-operation with General A by sending the lieutenant colonel to report to General A as Colonel E's representative.

Initial Artillery Dispositions

Colonel E's orders are included with those for the reserve as a whole, except for Battery A, and are to take up a defensive position on the Black—Rosendale ridge covering all approaches from the east. These orders for the reserve are not to be construed literally as requiring the artillery itself to occupy the Black—Rosendale ridge, since of course the infantry and artillery, to say nothing of the ambulance company and combat trains, cannot all occupy this ridge. The orders give Colonel E full latitude in the choice of position.

As to the enemy, he is known to be in force; although not specifically so stated, there is no doubt that he has artillery and probably some of it heavy. He is preparing to cross the river at one or more of three distinct points; these preparations have been made with great rapidity, leaving little doubt that the enemy's intentions are decidedly aggressive. His aggressiveness may well be attributed to his re-

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cent successes and to his numerical and possibly moral superiority.

Our own troops, though momentarily disorganized, are retiring successfully and the rear guard for tomorrow is a powerful one. The air service should be particularly valuable in giving prompt information as to the enemy dispositions. In the type of delaying action expected tomorrow, Colonel E need not have serious fear of counter-battery fire, for he can rely on being substantially equal if not superior to the hostile advance guard artillery. Heavy artillery suitable to put out Colonel E's guns is not apt to be in position early enough to interfere with his work. His initial position may be taken under fire from the east bank but at rather long range; if his positions are well concealed, they are not in great danger of being located sufficiently early to endanger them before it is time to move.

Four positions may be considered by Colonel E: first, the ridge projecting south from 1085 on the Lecompton Road; second, the ridge to the north, near Maasz farm house in vicinity of 345—745; third, the ridge 500 yards west of 1085 along which the Lecompton Road runs north and south; and fourth the Mrs. Norris ridge in vicinity of 344.5—743.3. The entire regiment can probably be placed in any of these positions, or two or more of them can be occupied by fractions of the regiment. The latter disposition would make hostile counter-battery work more difficult, but would also make command by Colonel E more difficult. As to accessibility, the third position is the best, the first next best, the second next, and the fourth least accessible. In convenience of egress the positions are in the order third, fourth, first, second. In point of fulfilling the mission assigned, the fourth has a slight disadvantage of retirement and the third also to a lesser extent; the first, third and fourth best protect the south flank which is the more exposed; all can reach the prospective crossings, but, except for that at Leavenworth, at long range. All positions would need displaced observers.

Colonel E decides on the third position, the ridge 500 yards west of 1085, with the regiment together.

It is dark before Colonel E starts on his reconnaissance, or will be shortly thereafter; therefore this decision is tenta-

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tively reached from the map, subject to modification or change if the examination of the ground requires it. The first position of the rear guard at least permits the installation and use of the telephone.

(At this point the student may well decide whom Colonel E takes with him on the reconnaissance, what communications are ordered, and what dispositions are made for observation.)

Although the action may develop so as to require the full artillery power in one locality, it is well to assign a sector of observation and normal action to each battalion. A suitable disposition in this matter would be to assign to the north battalion the area north of the Scheer Nursery (346.1—744.0)—212 road (347.5—744.2), exclusive, and to the south battalion the area south of this road, inclusive.

Artillery Action

The assistance of the artillery in a rear guard action is of two general classes: first, to force the hostile columns to deploy (this deployment in itself requiring time), and then to move across country; second, to inflict losses on deployed or marching columns, thus checking their progress and causing loss of time. The first class is the more important, particularly in large commands, since it is a role that belongs exclusively to the artillery; machine guns can obtain this effect but at shorter ranges. The second class of effect may be obtained in the case of particularly favorable targets or when it becomes necessary to delay the progress of the enemy to an unusual degree, as for example, when the main body encounters an obstacle. In this class of fire, all weapons participate to the limit of their effective range. The most difficult target for artillery is mounted cavalry because of its rapid movement as well as dispersed formation. When it becomes necessary for the artillery to attack a cavalry target and obtain sure effect, it is advisable to run up the guns and use direct laying, which obviously may have the effect of revealing the artillery's position.

The advisability of the rear guard artillery undertaking counter-battery work in preference to the above described missions depends on the situation; counter-battery work should ordinarily be decidedly a secondary mission.

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In the matter of opening fire from the first position of the rear guard and the objectives attacked, Colonel E should keep in close touch with General A in order that the latter may retain full control of the rear guard's action.

The attack of the hostile bridges across the Missouri would no doubt be effected by aerial observation.

Second Artillery Position

Under the plan of the commander, the mission of the artillery in the first position is completed when the enemy has deployed in force for the attack of the Black—Rosendale ridge. The next mission for the artillery is the support of the Mrs. Norris position, and it must be installed in its second position ready for action by the time the Mrs. Norris position becomes an active one. It might seem at first then that all of the artillery, at a stated moment, could begin a rapid movement as a body and proceed as rapidly as possible to the new position. This is, however, hardly advisable nor should it be necessary. The action is not apt to develop so that a moment can be selected when there is no need or opportunity for artillery support. It is well to retain a portion of the artillery in the first position until some is installed in the second position, or at least approach this state of affairs as nearly as practicable. The most gradual movement would be by battery, but would require a considerable period of time for the movement of five batteries; the alternative is the more rapid change by a battalion at a time. The latter has the advantage of keeping the battalion which is the fighting unit in hand at all times. The time for a rapid movement from the first artillery position to another in the vicinity of Nower may be estimated as 20 minutes. The total time for the regiment would be as many times 20 minutes as there are successive movements, aggregating one hour 40 minutes for a movement by battery and 40 minutes for a movement by battalion. Considering this situation as it might develop, the movement by battalion seems preferable. See Special Situation of Map Problem C-2 for the locations of these positions.

The time of moving the artillery from its first position would be ordered by General A, with or without consulting

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Colonel E. General A might specify how the movement was to be made, but this would best be done only after conferring with Colonel E. If the manner of conducting the movement were not specified by General A, Colonel E would order it according to the situation with which he would be familiar. The latter would probably be the preferable method, unless General A lacked confidence in Colonel E.

The reconnaissance of the second artillery position along the Lecompton Road should be begun immediately after daybreak by the regimental reconnaissance officer, with say two scouts. When the lieutenant colonel arrived at Rosendale farm house with General A, Colonel E would charge the lieutenant colonel with the preparation of the second position. The specialists, such as the telephone officer, the radio officer and the munitions officer, would concern themselves with their particular dispositions as opportunity offered during the occupation of the first position.

Before the reconnaissance, it is entirely probable that General A would have explained to Colonel E his plans as to the successive positions to be occupied by the infantry; if not, it would be necessary for Colonel E to request information.

Assuming the second and third infantry positions to be the Mrs. Norris ridge and the Nower ridge, respectively, Colonel E can indicate from the map the various positions to be reconnoitered. The infantry positions are from 1200 to 1500 yards apart. The E. Alexander ridge, 500 yards west of 1101, is apparently a good position, as is also the Nower ridge. There are also three ridges 500, 900 and 1400 yards, respectively, west of the Nower farm house; these are suitable positions, as far as can be seen, for all of the batteries. The next position is about 3000 yards west of Nower, so that the positions for the support of the Nower ridge are limited practically to the ridges 900 and 1400 yards west of it, the ridge at 500 yards being too close. It can be seen then that if the E. Alexander ridge be occupied for the support of the Mrs. Norris ridge, two moves would be required to retire the artillery a distance of 2500 to 3000 yards. This is hardly warranted, because of the time the artillery would be out

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of action; and particularly so since the Mrs. Norris ridge can be supported very well from the positions west of Nower. Colonel E would doubtless outline this condition briefly to General A and unless the latter dissented would direct the reconnaissance of positions in the vicinity of the O. C. Ballard ridge in vicinity of 341.5—742.8 and the ridge 500 yards west of it. The position chosen might be the O. C. Ballard ridge for both battalions or a battalion on each of the two ridges. Communication essentially by telephone should be practicable in this position, since the lines can be laid beforehand. If time does not permit the establishment of communication with the observation posts by telephone, fire can be conducted by semaphore with very little loss of time, particularly with a good map as in this case.

The incident of the hostile infantry column moving west with the head one mile west of C. Rodenburg presents no unusual aspect to the artillery in its second position. The range is easy, but the direction will probably necessitate changing the front of the batteries firing. Depending on the action along the Lecompton Road, all five batteries or one battalion would be turned on the flank column. The effectiveness of the fire would depend on observation; if the fire could be observed, considerable damage could be inflicted; if map firing or similar methods were necessary, the effect would be less. In any case, the column would be forced to leave the road and change formation.

GENERAL

To summarize the principles involved:

1. In the selection of objectives for the rear guard artillery, the mission of the rear guard should be kept in mind, i. e., to delay and obstruct the hostile pursuit. In general terms the most favorable target would be the most advanced undeployed hostile column or the most dense or most threatening formation. It might be necessary to attack a deployed formation which threatened our defensive position to the neglect of a dense column which was not at the moment an important factor in the situation. Or again, exceptionally, counter-battery might be necessary if the hostile artillery were the most troublesome and dangerous element to the security of our position.

2. The artillery supports no particular infantry unit, but instead supports each successive position with its full strength. In a particular position, the artillery subdivisions should ordinarily be assigned to sectors for observation and minor actions; this would naturally lead to close co-operation with the infantry

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units in the various sectors for the time being. The entire artillery must, however, be available for concentration on a threatened point anywhere in the combined sector, subject of course to limitations of range and the characteristics of the individual positions.

3. This leads to the conclusion that all of the artillery in a situation should be solely under the commander of that situation; thus General A, and not the infantry regimental commander, commands the artillery of the rear guard proper (five batteries), while the flank guard commander has the battery assigned to him. Ordinarily the artillery would not be attached to subordinate infantry units, because they are only intermittently in action and because the main role of the artillery is to force deployment at long range out of the sphere of action of infantry units. This usual procedure will, however, have exceptions, examples being cases such as the following: The stubborn defense of a particular position at all costs, where in its decisive stage the combat would be local; operations in very close country, with difficult observation and communication; or a defile. It may be argued that the infantry weapons are for such purposes, but it must be remembered that the artillery is more powerful than these weapons and can perform some missions more effectively. Single guns or batteries might in these cases be attached to subordinate infantry units for the duration of the particular action; they could function in the usual manner both before and after the special situation. The situation must be the basis of decision in this matter; no rule can be given.

4. It is a well established principle that although the full artillery strength should ordinarily be placed in *observation*, it need not necessarily be placed in *action*, unless it has a useful mission. Such a course would needlessly expose the artillery dispositions and waste ammunition. In this situation, it would be exceptional to hold any of the artillery in *readiness;* this being done only when its mission is so entirely uncertain as to make even the selection of a suitable position impracticable.

5. As in this problem, the artillery positions can be much more forward than is usual in defense, first—because of the mission of reaching far into the hostile formations and forcing deployment, and second—because a position is occupied for a short time only and ordinarily cannot be located by the enemy at once even though advanced. Similarly, scattered and echeloned artillery dispositions, detrimental to control, are not necessary and therefore are ordinarily inadvisable.

6. Ammunition supply presents no unusual features, in fact should be easier in the matter of quantity.

7. Communication should be by telephone as far as possible, failing this, visual, semaphore or projector, for conduct of fire, with courier for command in addition.

8. The artillery commander should place himself whenever practicable with the rear guard commander; this is if anything more than usually important, but subject also to the usual qualification of ability to control the artillery from such a position.

9. There must be no relaxation on the part of the artillery of its efforts to maintain connection with supported infantry units by means of information agents.

10. Local protection of artillery in position cannot be overlooked, but in this situation, with the artillery well forward, there is no cause for apprehension. The artillery, both in position and in changing position, is responsible for the use of its scouts to guard against surprise, which, with its own automatic weapons and small arms and nearby infantry reserves, should be sufficient.

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11. The degree to which the tactical commander will prescribe the artillery position is subject to variation and doubtless in practice is influenced by the personal element. The tactical commander is most concerned with the ability of the artillery to perform its mission which must be indicated above all else. The tactical commander may have definite reasons for wanting the artillery in a particular vicinity, to avoid conflict with other units, or in contemplation of subsequent missions, in which case he is perfectly at liberty so to prescribe. Or he may prescribe the position as on a general line, in rear or in advance of a certain line, etc. If the position of the artillery is not prescribed by the tactical commander, he will in any case want to know the position taken, and this should be reported by the artillery commander as early as possible, preferably before the actual occupation. The tactical commander can give corrective orders, even though he has not prescribed the initial artillery position.

REFERENCES:—*Drill and Service Regulations, Field Artillery.* Par. 1694, amount of artillery in the rear guard; changes of position during an action. Par. 1468, holding artillery out of action and out of position. Pars. 1720 *et seq.* and par. 1527, sub-par. 7, local supports for artillery. For examples of artillery action in rear guard and pursuit under modern conditions, see *The Field Artillery Journal* for October-December, 1915; January-March, 1916; and April-June, 1916.

(C-4) REAR GUARD ACTION—MAP PROBLEM

MAJOR R. MCCLEAVE,
Infantry

Maps: General Map Gettysburg-Antietam, 1″ = 10 miles, and 1:21120, Hunterstown, New Oxford, Gettysburg, Bonneauville Sheets.

General Situation:

Virginia and Maryland (Blue), and Pennsylvania (Red) are at War. The 1st Blue Army is mobilizing south of the line Washington—Leesburg, the 1st Red Army in the area Harrisburg—Lancaster—Reading, neither side having completed mobilization.

Special Situation (Blue):

The 1st Blue Corps, thrown forward in advance of the 1st Blue Army, was defeated on May 1, 1919, on the line East Berlin—York Springs and retired on May 2, 1919, to the line Hunterstown—Goldenville with outposts along Conewago Creek (in flood and unfordable anywhere, as is the Little Conewago Creek also).

The 1st Division, the left (east) division during the retreat occupies concentrated bivouacs around crossroads 549 northwest of Hunterstown with outposts consisting of 1st

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Infantry; 1st Squadron, 1st Cavalry; 1st Battalion, 1st Light Artillery, along the Conewago. Line of resistance Woodside S. H.—hill 616—hills 707—712 with detachments directly covering all crossings as far west as Bridge S. H. All bridges have been destroyed. The 1st Squadron, 1st Cavalry, is holding the crossings at Newchester and east and west of that town. The adjoining division is camped south of Goldenville with outposts along the Conewago from Bridge S. H. to the west.

At 5:00 PM, May 2, 1919, Brigadier General A, commanding 1st Brigade, received the following message from the division commander:

> "Hostile advance elements are camped on the line BOWLDER—HEIDLERSBURG—CENTER MILLS. Vigorous pursuit may be expected tomorrow.
>
> "Our 1st Blue Army is advancing toward the line TANEYTOWN—EMMITSBURG. This corps continues its retreat tomorrow toward the line TANEYTOWN—BRIDGEPORT.
>
> "This Division retires via GRANITE HILL STA.—BONNEAUVILLE—TWO TAVERNS toward TANEYTOWN. Complete reorganization has not yet been effected. Rear elements of main body will clear GRANITE HILL—GULDENS at 8:00 AM.
>
> "Your brigade with the 1st Light Artillery; 1st and 2d Squadrons, 1st Cavalry; 4th Ambulance Company; Company A, Engineers, and one flight, 1st Observation Squadron attached, will form the rear guard covering the rear and left (east) flank. The enemy must be held north of the CONEWAGO till 8:00 AM. Demolitions at your discretion. Attached elements immediately at your disposal. Your field trains will join division field trains. The corps cavalry will cover the left flank of the corps east of the LITTLE CONEWAGO."

Required:

General A's estimate of the situation.

Solution

GENERAL A'S ESTIMATE OF THE SITUATION

MISSION. The mission is the usual one for rear guards. This rear guard must cover the rear and the left (east) flank of the division, and hold its ground till the main Blue columns are under way. It must delay the enemy without fighting by offering and refusing battle, and forcing long range deployments. It must fight to the minimum or maximum extent, according to what is required for the safety

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of the main body. The rear guard must preserve a compromise distance, near enough to prevent being cut off, but not so near that a reasonable delay will endanger the main body.

COMPOSITION AND RELATIVE STRENGTH. His *own force*, as stated in the problem, consists of a brigade, heavily reinforced with a regiment of artillery, two squadrons cavalry, an air service flight, sanitary and engineer detachments. The field trains are with the divisional field train. The physical condition, low morale and probable slow rate of march of the Blue main body all receive attention. The *enemy* is pursuing in heavy columns, of which two may well menace his division, those at Bowlder and Heidlersburg.

COURSES OPEN. *Red*: Both direct and parallel pursuit are clearly indicated. The force at Bowlder is so well situated for parallel pursuit via Newchester as to require special attention. Hostile pursuit via Plainview must be expected, although this pursuing column may continue toward Gettysburg, leaving only the Bowlder column to be held off.

Blue: General A must temporarily at least hold both columns north of the Conewago. The necessary division of his force must be made for this purpose. The crossings about Newchester now held by a squadron of cavalry are of such importance as to make a strong reinforcement of this cavalry a necessity. In view of the paramount necessity of holding off this force during the first stages of the march, the reinforcement should be of infantry, artillery, and machine guns to give certain resisting power. As cavalry will be required also directly in rear, one squadron will suffice for the rear guard and one squadron (already at Newchester) for the flank guard.

TERRAIN. General A notes the generally rolling character of the terrain, the numerous woods, wooded streams, ridges and hills as generally favorable for rear guard action.

(a) *Streams:* Looking toward the enemy he notes in order the following: First, the protection of the flooded Conewago, the delay in bridging, and the possibility of serious delay from positions immediately south of the stream. In this connection, he notes the left flank protection possible

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by the destruction of bridges over the Little Conewago. He notes also possible delay at the crossings of Alloway Creek further south, as well as at minor stream crossings. He notes the southeasterly course of the Conewago from Plainview to Newchester, increasing the danger of pursuit via Newchester. The salient formed at Newchester by the course of the stream receives attention as an aid in defense.

(b) *Roads:* Nothing in the situation indicates any physical difficulty with the main roads, which in this section are in the nature of improved pikes.

The convergent nature of the roads from Plainview and Newchester toward Granite Hill Station—Guldens receives attention. He figures that careful road directions in his orders will be necessary to prevent merging of the rear guard and the left flank guard. He considers this possibility, which may be adopted later, but for the present he will prefer to maintain the flank guard which he notes will be in close supporting distance of the rear guard south of Granite Hill Station—Guldens.

He notes that the first stage of the march of the main body changing from its former southwesterly direction to the southeast, partakes of the nature of a flank march with respect to the Bowlder column, making early resistance imperative. The flank guard in this case may prove of greater importance than the rear guard, and requires exceptional strength, due to the particular circumstances.

(c) *Positions:* He will give immediate and particular attention to the first and second positions south of the Conewago, which is as far as he can go in his orders—the hostile movements will largely determine his action beyond that point.

He notes possible holding positions for rear guard and flank guard: first, the 712—707—Plainview ridge and 707—616 ridge just south of Plainview; second, the 573—572—480 hills south of Newchester, with a possible position across the river angle just north of Newchester.

(d) He searches for a position in readiness for the reserve and finds that Woodside S. H. while not too far from Plainview, affords opportunity for reinforcing Newchester during the night if required, and also covers the river line between those points.

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He notes successive defensive positions for the rear guard and flank guard as far as the line Granite Hill Station —Brush Run, which he regards as the critical stage, as follows:

Position for the rear guard:

POSITIONS FOR THE REAR GUARD

1. Woods west of Woodside S. H.
2. Woods north and northeast of Henderson Meeting House.
3. Hill 574 west of Henderson Meeting House.
4. Flank position, woods east of Hunterstown.
5. Woods and ridges half way between Hunterstown and Granite Hill Station.
6. An excellent position on wide frontage just north of Granite Hill Station.

POSITIONS FOR THE FLANK GUARD

1. Snyder and southeast along edge of woods (wide front).
2. Swift Run S. H. west, including hill 571, and two noses southwest of hill 571.
3. Moritz S. H. and ridges east and west.

The flank guard has a better "get-away" than the rear guard, but the routes are converging and the possibility of mutual support must not be overlooked.

DECISION

General A decides to detach a regiment of infantry, two machine gun companies, a battalion of artillery, a platoon of engineers and an ambulance platoon and five bearer squads to reinforce the squadron of cavalry now holding Newchester. The above to constitute the flank guard, and hold the enemy north of the Conewago between mouth of Little Conewago Creek and stream crossing east of Cashmans till 8:30 AM.

The remainder of the force to constitute the rear guard and to hold the enemy north of the Conewago till 8:00 AM, between stream crossing near 529 and Bridge S. H.

To make the following general disposition of the rear guard:

Support:

One squadron cavalry.
One battalion infantry.
Two companies, 2d Machine Gun Battalion.
One platoon, 1st Engineers.

Reserve:

One regiment infantry (less one battalion).
1st Light Artillery (less one battalion).

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Company A, 1st Engineers (less two platoons).
4th Ambulance Company (less one platoon and five bearer squads).

That the support will hold the Plainview position, supported by the battalion of rear guard artillery. The reserve to be ordered to move at once to a position in readiness near Woodside S. H., and to outpost river line between stream crossing near 529 and ford northeast of Cashmans.

The air service flight (less one plane reserved for observation duty by rear guard commander) to be assigned to the duty of artillery fire observation and direction under the artillery commander.

To assign the commanding officers of the 1st and 2d Infantry to the command of the rear guard and the flank guard, respectively.

To direct a small cavalry detachment to proceed immediately tonight to destroy the bridges over the Little Conewago.

To order the engineers (less two platoons) to follow main body without distance to prepare obstructions and demolitions.

To direct the flank guard to retire via the Newchester —Moritz S. H. road, the support of the rear guard via 525 —Hunterstown road. The reserve to hold the woods west of Woodside S. H. till the support gets clear, then to retire on Granite Hill Station.

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CHAPTER V

The Offensive

(A) GENERAL DISCUSSION OF THE OFFENSIVE

MAJOR H. A. DRUM,
Infantry

OFFENSIVE VERSUS DEFENSIVE

It is not necessary to dwell long on the value of the offensive. Officers of any experience do not have to be taught that decisive results are gained only by the offensive in some form or other.

> "The defense may repulse the enemy but only the attack can annihilate him."

The decision to attack or to defend is governed by the tactical situation and the will of the commander. Numerical superiority, of which one is seldom aware until after the battle, is a secondary consideration. Determined attacks, again and again repeated in spite of failure, are the surest means to victory and of keeping the enemy in ignorance of his superiority. Favorable terrain features must not alone determine the question of attack or defense.

The attacker leads, gains in morale and plays his own game. The defender follows, and only when the attacker gives him a breathing spell can he follow any plan but that of the attacker. The advantages are with the attacker. *When in doubt attack.*

The attack is more difficult to plan, to execute and to carry to a conclusion than the defense. However, having the advantage in the attack of adhering to one's own plan instead of having to follow the enemy's lead, successful combinations are more easily secured which permit the main power of the force to be applied for decisive results. The adoption of a plan permits a co-ordinated and concentrated utilization of the forces, whereas the defender has often to disperse his efforts in so many directions that he becomes too weak at all or some vital points. While the defender

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has the advantages inherent in fire power, the attacker profits by initiative, morale and the gaining of a definite objective for which all available power and force can be used in concert.

There is a quality especially associated with the attack which gives to it not only character but also the greatest advantages, and that is boldness. Boldness benefits the attack in a far greater degree than it does the defense. Bold commanders are favored by fortune. Military history has been made by this quality more than by any other. Experience shows that formations and plans of attack have had little influence on the final result in comparison with the spirit and will to conquer. Boldness combined with prudent foresight displayed by a commander is quickly absorbed by the entire command, and a spirit of being "invincible" quickly permeates the whole force. However, a distinction must be made between boldness and recklessness. As an example of true boldness Lee's action at Chancellorsville should be studied, and as an example of recklessness that of Burnside at Fredericksburg.

Characteristics Common to All Attacks

There are various plans and forms of attack. Their adoption is governed by each tactical situation and the conditions involved therein. They include the various forms of making surprise attacks, enveloping attacks, turning movements, meeting engagements, penetrations and frontal attacks. Each plan or form is influenced by definite principles which will be considered in detail later.

However, independent of the form, all attacks have certain characteristics in common. The various methods or forms of the attack, as indicated above, relate to the plan of the attack, that is the form and combinations that are to be employed. The execution of the attack, no matter what the plan, is guided by certain principles common to all attacks. These principles of execution will be taken up prior to discussing in detail the various plans of attack.

In order to indicate these common characteristics the various steps included in the execution of an attack must be considered. For subordinate organizations of an attacking

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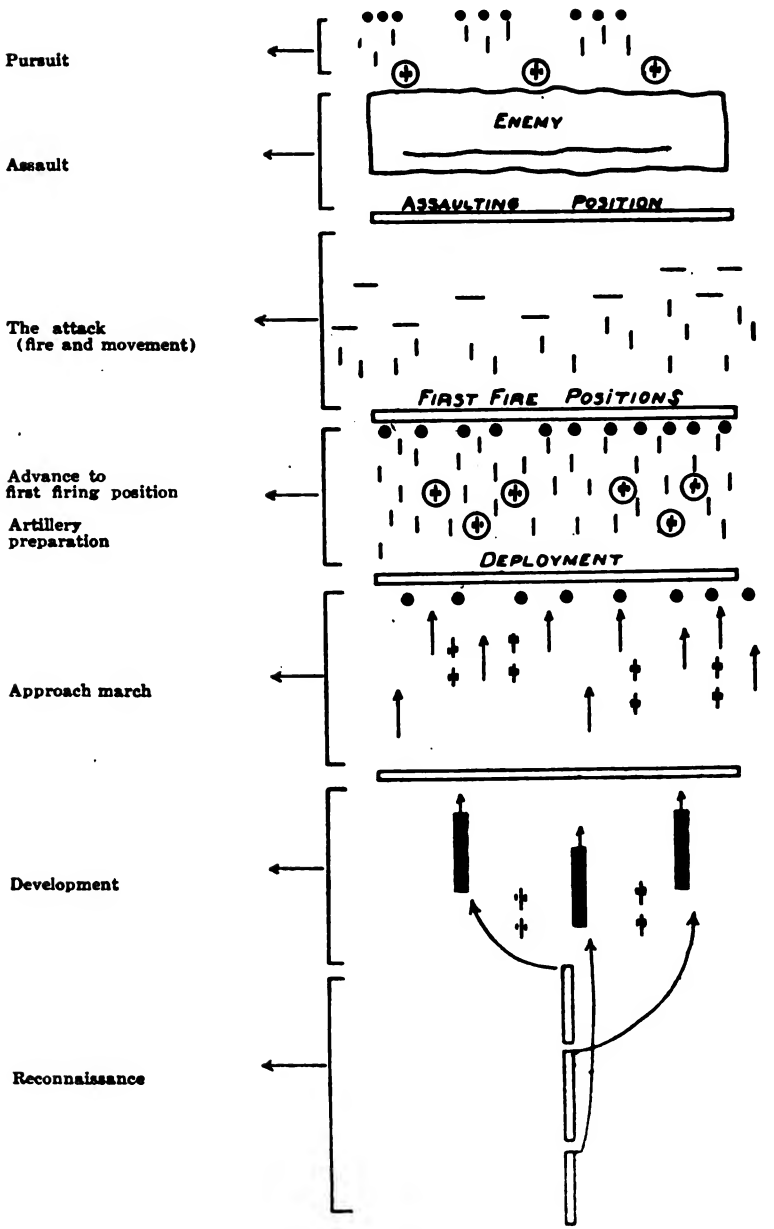
DIAGRAM NO. 1, ILLUSTRATING STEPS IN AN ATTACK
(Open Warfare Situation)



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force, all attacks are frontal. A wing of an army or a corps or an independent division may make an enveloping attack, but the actual execution thereof results in a frontal attack for those units comprised in the enveloping wing. As all attacks are frontal from the viewpoint of subordinate units, the common characteristics will be found in frontal attacks. This is true in any offensive situation, whether an open warfare or a stabilized warfare one.

To make the foregoing statement clear it will be well to examine the sequence of steps in the two extremes of frontal attacks, which are an attack in a meeting engagement, and an attack against a defensive zone. Intermediate situations have similar characteristics.

In an attack in a meeting engagement the sequence of steps will generally be as follows (see diagram No. 1):

(a) Reconnaissance and covering detachments.
(b) Development.
(c) Approach march.
(d) Deployment.
(e) Advance to first firing positions. { Artillery preparation
(f) The attack (fire and movement), which seeks by a combination of superiority of fire and movement to place the attacker within assaulting distance of the enemy.
(g) The assault.
(h) If successful, the pursuit.

In an attack against a defensive zone (stabilized situation), the sequence of steps will generally be as follows (see diagram No. 2):

(a) Reconnaissance.
(b) Artillery preparation.
(c) Forming the troops for the attack.
(d) The assault of the hostile first position.
(e) The attack (fire and movement), which seeks by a combination of superiority of fire and movement to reduce hostile intermediate positions and to place the attacker within assaulting distance of the hostile second or rear positions.
(f) The assault of the hostile second or rear position.
(g) Repetition of (e) in case other hostile positions exist in rear.
(h) The "break through" or pursuit.

An analysis and comparison of the foregoing will result in the following conclusions:

(a) Although the sequence of steps is not the same in the two situations, the following steps are common to both attacks: Reconnaissance—artillery preparation—the attack—the assault—the pursuit.

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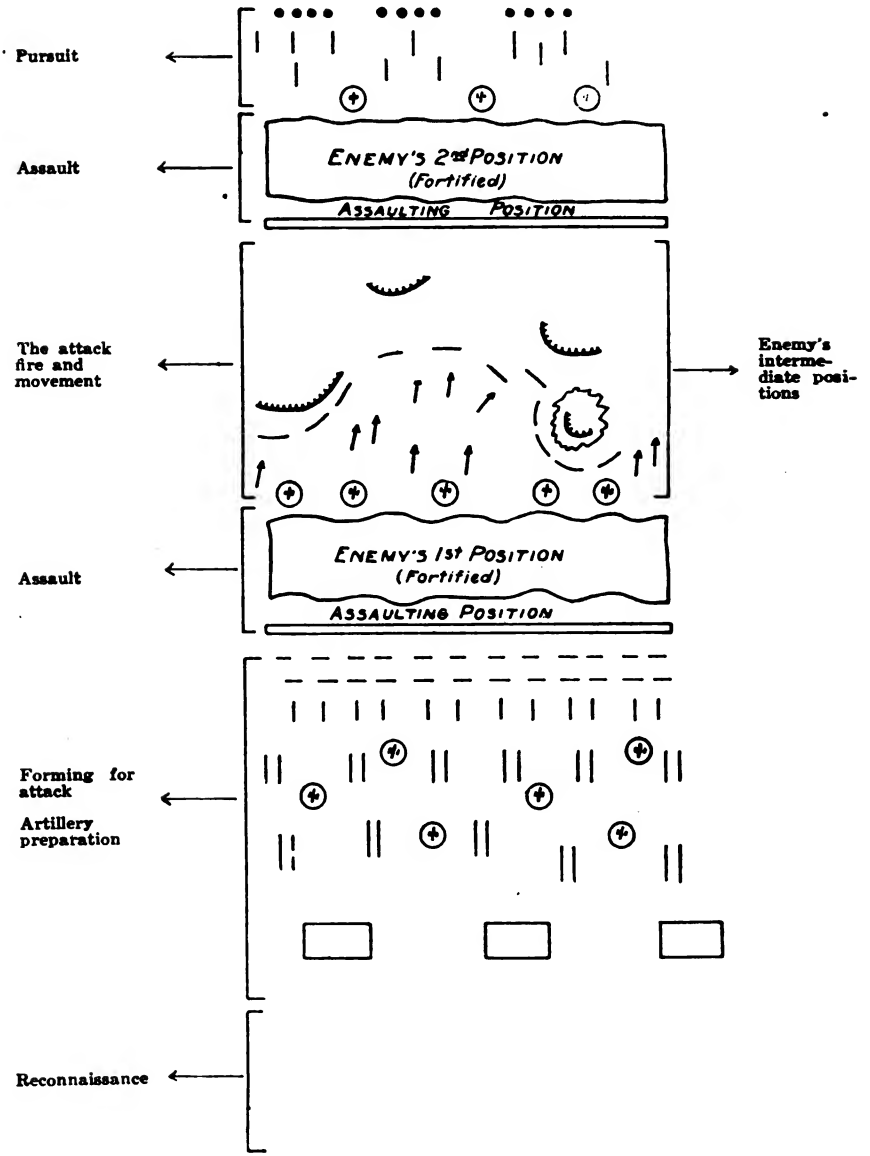
DIAGRAM NO. 2, ILLUSTRATING STEPS IN AN ATTACK
(Stabilized Situation)



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(b) The development, approach march, and advance to the first firing positions are steps peculiar to the open warfare situation.

(c) The deployment and the advance to the first firing positions of the open warfare, and the forming of the troops for the attack in the stabilized situation, are analogous steps in both situations.

(d) The main difference between the two situations is that in the open warfare situation the attacker has to advance and to fight his way to the assaulting position by fire; while in the stabilized situation the attacker, under cover of advanced troops and darkness, forms his initial attack at the assaulting position and in contact with the enemy. However, the attack is a characteristic of both situations.

In the discussion that follows the foregoing conclusions should be kept in mind.

RECONNAISSANCE

The reconnaissance here considered is that which precedes an attack. The results of this reconnaissance have the greatest influence on the decision and subsequent plan of attack of the superior commander. This class of reconnaissance is of the greatest importance and cannot be too thoroughly done. Every commander should personally supervise the drawing up of the reconnaissance plans by his general staff, and also their execution.

This reconnaissance may be considered under three phases:

(a) Location of enemy's main forces and determination of their strength, composition, formation and actions.

(b) Determination of the enemy's probable intentions and the general disposition of his forces.

(c) Determination of the enemy's detailed dispositions and the nature of the terrain in relation thereto.

The superior commander generally has at his disposal three agencies with which to secure the above information; they are air service, cavalry and infantry.* The parts that these three arms play in this reconnaissance may seem to be rather separate and distinct, but if they are properly employed, the result will be a well thought out and co-ordinated plan of reconnaissance.

The importance of the first phase (a) is evident. The information received as a result thereof greatly influences the superior commander's decision to attack, to defend, or

* This does not include such agencies as spies, friendly inhabitants, daily observations in stabilized situations, etc.

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to avoid the enemy. Failure to receive early information of this class results in surprises, and frequently in disaster.

The superior commander has at his disposal his air service and cavalry, and in stabilized situations daily observations, with which to secure early the information required. He should utilize these agencies in a well considered plan. Reliance should not be placed on any one agency alone; all should be employed.

The airplanes should cover by irregular flights all roads and defiles, and especially exits from woods and towns. Observation balloons should ascend well forward and cover all terrain within their radius of observation.

The bulk of the cavalry should be kept well forward (especially to a flank) not only as a screen to the movements of their own troops, but also as a reservoir from which numerous patrols are drawn. These patrols should radiate in all directions that probably lead towards the enemy, and by stealth, and at times with the utmost boldness, should seek to gain the required information. In addition, it will frequently be advantageous for the superior commander to send out special officers' patrols to cover particular districts. Specially trained intelligence officers should be used for this purpose.

Information of the enemy's probable intentions and the general disposition of his forces (second phase) bears directly on the commander's general plan of attack. While this information cannot always be secured in so many words, or in definite and precise terms, various indications, some of minor and others of vital importance, can be gathered. The sum total of these indications should result in a fair estimate of the situation. It is most desirable that this phase of the reconnaissance disclose the extent in width and depth of the enemy's dispositions. The width is desirable to show not only strength but also location of flanks. The depth will show strength, and to some extent the disposition of his artillery, and thereby his probable intentions.

The agencies that have been mentioned are employed for this phase and in a manner similar to that already described. In fact, the work of these agencies in the first phase should overlap into that of the second. Frequently

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the same piece of information will cover both phases. The cavalry will often determine the width while the air service learns of the depth of the enemy's formation.

The determination of the enemy's detailed dispositions and the nature of the terrain in relation thereto (third phase) is desirable as a basis for the superior commander's detailed plan of attack. The class of information gathered in this phase varies in quality and quantity with the time available. In open warfare situations great detail cannot be expected; in fact the time element or a fleeting opportunity may force the superior commander to act without delaying for detailed information. In the stabilized situation the means at hand, including flash and sound ranging instruments, close contact with the enemy, and constant observations over extended periods, should supply a complete picture of the enemy's dispositions. The more time available, the more detailed and complete the information that should be gathered.

Where the situation permits it is desirable, in an average case, to learn as much as possible concerning the following:

Exact location of enemy's lines, especially his main line of defense.
Depth of his deployment.
Exact location of his flanks.
The nature of the terrain on his whole front, but especially on his flanks with a view to cover for envelopments.
Location of obstacles.
Location of weak and strong parts of his line and covered approaches thereto.
Location of his artillery.
Location of his reserves and airdromes.
Location of his agencies of supply and evacuation.

Infantry will have to be employed actively for the procurement of a large part of this data. Most of this information can be obtained only through close contact with the enemy. The cavalry will be to a flank at this time and, unless a considerable length of time and good weather are available, the air and observation services will not be able to secure enough detailed information.

The infantry that is employed for the above purpose may consist of scouts, patrols, and even companies and battalions. In the event that companies or battalions are employed, they are advanced to points of vantage, from

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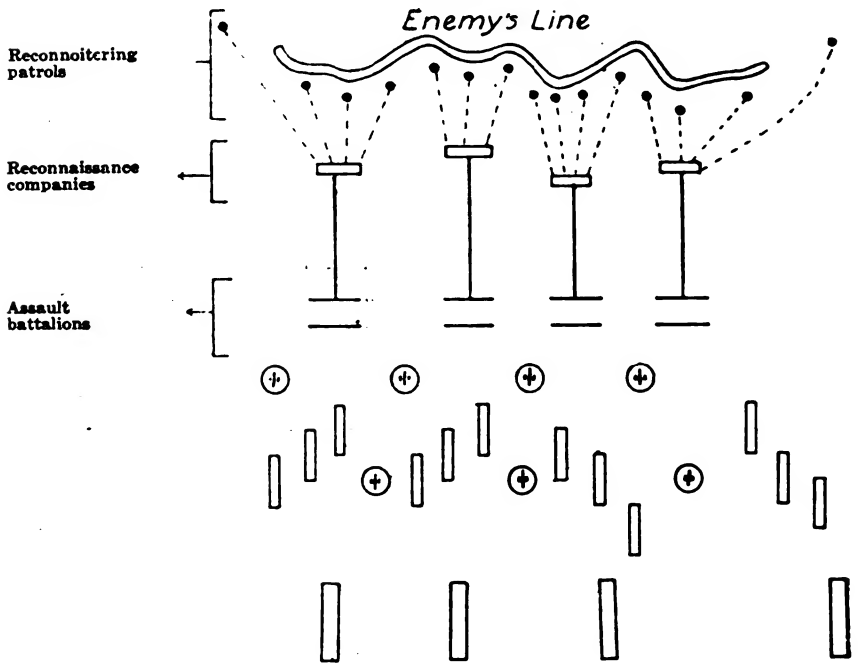
which they send forward patrols to search out the entire hostile front. In stabilized situations, carefully prearranged infantry raids supported by artillery fire are employed (see diagram No. 3).

DIAGRAM NO. 3, ILLUSTRATING COMPANY AND BATTALION RECONNAISSANCE



In view of the important relation that this detailed reconnaissance bears to the commander's final decision and plans, the necessity of utilizing officers tactically well trained should be appreciated. An officer, well trained only from the standpoint of horsemanship, airplane pilot or platoon leader, cannot grasp the tactical side of the situation, and may do more harm than good.

It should be kept in mind that the time element, fleeting opportunities, and psychology, all influence the amount of reconnaissance required or advisable before a decision can be made. *While every opportunity should be grasped to secure information of the enemy, the advantage of a fleeting opportunity or the initiative must not be lost by waiting for complete information of the enemy.*

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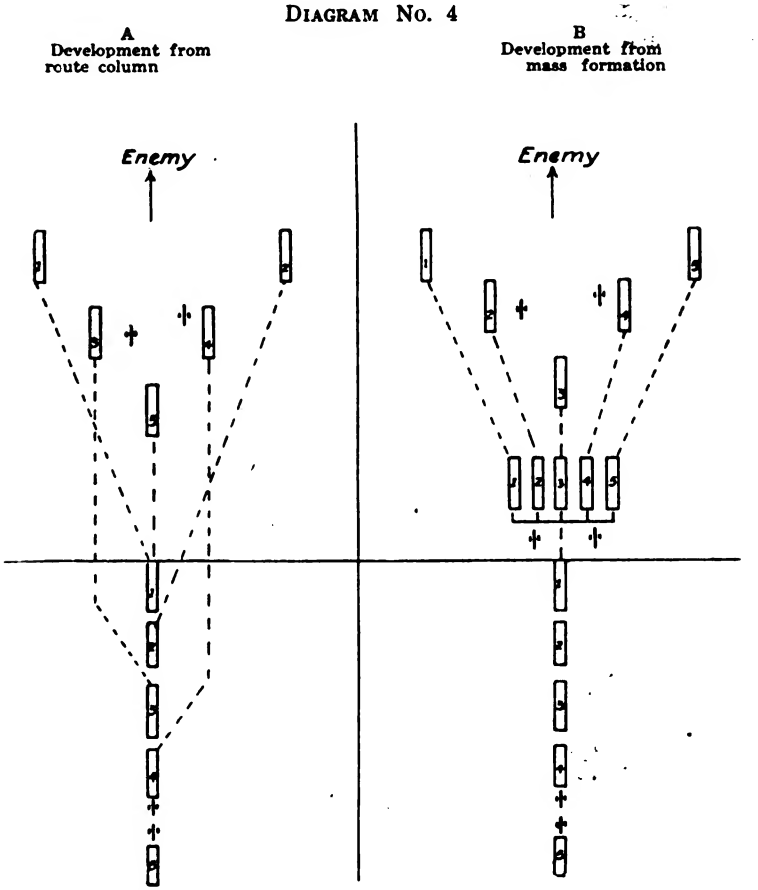
DEVELOPMENTS

By development is meant the breaking up of a command into fractional columns and marching the latter on a designated objective or the enemy.

The development may be made from a route column, or from a mass formation in a position of readiness as illustrated in diagram No. 4.

DIAGRAM NO. 4



Of course, the value of the development is lost if the route column is first massed and then developed as indicated in diagram No. 4 (b). The time element, as well as direction, is a main factor for consideration. The development from the mass formation is called for in situations

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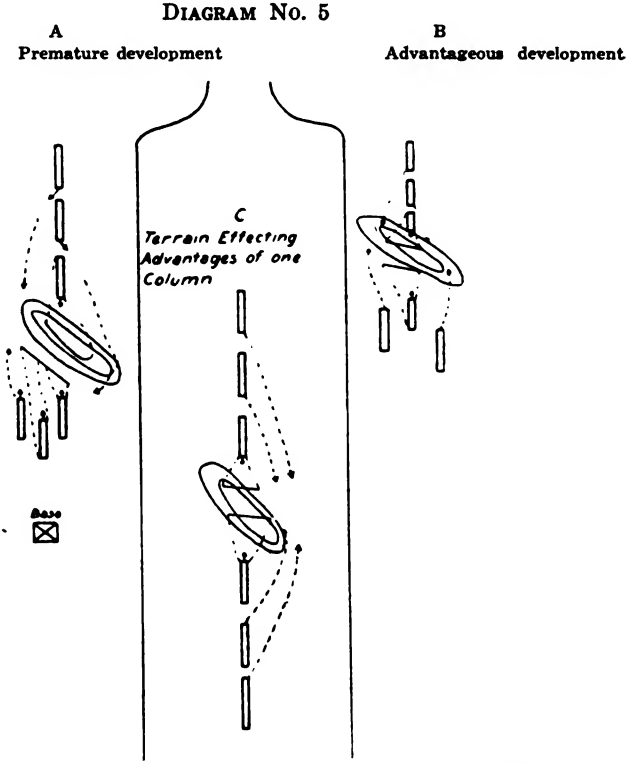
where the command finds itself massed when dispositions have to be made to meet an enemy.

The objects and advantages of developments are threefold:

(a) To gain time in deployment and advantages in attack directions.
(b) To avoid losses from artillery fire and aerial bombing.
(c) To make aerial observation difficult.

The gaining of time in deployments is a question of road space and distance. If a column ten miles long is broken up into two columns, marching parallel to each other and with half deploying distance between them, these columns can deploy to the front in half the time required for the same number of troops in one column (see diagram No. 5 (a).

DIAGRAM No. 5



The early development, permitting rapid deployment, often gives the commander such initiative that he can force

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the battle to take a direction to his advantage (see diagram No. 5 (b).

The small columns that result from development facilitate the use of natural cover or concealment and make more difficult the hostile artillery fire, aerial bombardment and observation.

The disadvantages of development are:

(a) The commander is committed to a general direction for future action, thereby limiting his maneuvering ability.

(b) Most of the troops are forced to march across country for a long time. While this often has the advantage of affording cover or concealment, the rate of advance is slowed down and there is greater fatigue. However, the movement is absolutely necessary.

(c) The maneuvering power is limited, especially when an enemy is encountered to a flank. See diagram No. 5 (a). In this case, the commander is limited to maneuvering with his left columns which are some distance from the enemy and the covering ridge. In addition, his deployment will develop to a flank which may expose his line of retreat, etc. Compare with the case illustrated by diagram No. 5 (c).

The following principles influence a decision as to the time when the development should be started:

(a) With an attack imminent all columns should be reduced in depth by extension in such a manner that the tail of each column may render timely support to the head of its column.*

(b) The development should not be made until the direction of the attack is determined. This must not be taken in a narrow sense. Superior forces should be able to force the attack in a desired direction, and therefore can determine it well in advance. Also, in a meeting engagement, the side that makes the earlier development can frequently force the other side to fight in a previously selected direction. The point to the above statement is that the development must not be made purely to extend the front and without any reference to an attack direction.

Special considerations:

(a) Reconnaissance by cavalry and air service is essential to gain accurate information that will influence the time and direction of development.

(b) Reconnaissance by cavalry and air service, and local security by each column should be maintained during the development and subsequent advance.

(c) Each column should be directed on its probable objective in the coming engagement. The principle is, first to direct the columns on their proper objective, and later to have them take a suitable combat formation.

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*A column of one regiment—1½ miles—30 minutes.
A column of one brigade—4 miles—1 hour and 30 minutes.
A column of one division—15 miles—6 hours.

Can the whole column be put into the fight before the head is defeated?

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(d) In ordering the development, the front and the depth of the subsequent deployment should be carefully considered. The strength of each column should bear a definite relation to the probable front and depth of its deployment in the engagement. In other words, a decision as to the front of the main attack should be made prior to development.

(e) In the advance, the various columns should be within supporting distance of each other. This distance depends on the strength and composition of each column and the proximity of the enemy.

(f) Unless the situation requires a reinforcement of the covering forces, it is more expeditious to make the development by directing the leading units to the flanks, that is, by assigning them positions in the most distant part of the line. However, the integrity of units must not be broken up. (See diagram No. 4 (a).)

(g) During the development, advantage should be taken of every opportunity to clear the roads, so as to bring the artillery well forward.

(h) During the development and the subsequent advance, all commanders of higher units should push forward and make a personal reconnaissance. This applies especially to separate column commanders and artillery commanders.

Approach Marches

The approach march is the link that connects the development with the deployment. It is really an expansion of the development by the breaking up of the separate columns into still smaller ones. This breaking up of columns into smaller ones progresses gradually as the advance approaches the full deployment and the enemy.

The size of the various columns, their echelonment and the distance between adjacent columns are influenced by the conditions given for development, namely, utilization of natural cover or concealment. Following the development, the commander of each separate column has the responsibility of determining when and how further extensions are to be made.

There is one distinguishing line of demarkation between the development and the approach march. For the development each column need only be assigned an objective or a direction point on which to march, whereas, definite fronts, zones of action and missions should be assigned the various large units prior to their taking up the approach march. This is especially desirable in meeting engagements when subsequent situations develop very rapidly. The subordinate commanders need the information indicated for use as a basis for their decisions relating to frontage and depth

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of deployment, reserves, flank protection, and such matters. Once the approach march formation is taken up and the larger columns begin to break up into smaller ones, changes in fronts, objectives, missions, and the like are difficult and often impracticable. In fact, the approach march should be a progressive extension, which, step by step, results in the deployment.

The advance in the approach march should be by bounds from cover or concealment to cover or concealment. Each column of each echelon advances independently of alignment, remaining as far as practicable within its own zone of action.

Each column, especially of the first echelon, should be preceded by covering detachments. If the advance detachments of the enemy (security) may be encountered, a thin skirmish line will generally be sent out ahead by the columns of the first echelon.

During the approach march, subordinate commanders of the leading columns should precede their commands to such positions as will permit personal reconnaissance and the preparation of detailed plans of attack. The detailed orders for the attack should be issued prior to deployment and should designate when practicable *first firing positions*. Flank protection and reconnaissance should be maintained throughout the march.

It may be necessary for the artillery to open counter-battery fire on hostile batteries during the approach march. With due regard to security, the artillery should be advanced rapidly to positions from which it can fulfill the above function, and also those that follow in the attack proper, thus saving a move. Early reconnaissance should be made with this in view.

Aerial observation should be intense during this period, as the hostile artillery will expose its positions when it fires. During and prior to this period much data that should guide the friendly artillery in the attack proper can be gathered.

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Deployments, Advance to Firing Positions.* Forming for Attack and Artillery Preparation

As previously indicated, the deployment and the advance to first firing positions* in open warfare situations, and the forming of the troops for the assault in the stabilized situation may be considered as analogous steps. So also the artillery preparation in both cases may be considered to be similar. These steps of the two attacks will therefore be treated together.

Deployment may take place on first firing positions or earlier, depending upon the terrain and the hostile fire. No two situations will demand the same mode of action. In most cases, deployment and the advance to first firing positions are made at the same time. If any distinction is desired, the deployment may be said to take place on the general line where battalion commanders of the leading echelons issue their initial attack orders.

The forming for the attack in the stabilized situation is the deployment therefor and is based on the line from which the assault is to start. This line is frequently referred to as the "parallel of departure," "jumping off line," etc. The deployment of the command in frontage and depth is here made, in accordance with a prearranged plan based on detailed reconnaissance. The advance to the "jump off" line in the stabilized situation is usually made under cover of darkness and as secretly as possible. The units are placed in their proper positions shortly before the assault starts. The regular covering detachments that are occupying the front lines remain in place and cover the assembly of the attacking troops.

In open warfare situations the advance to first firing positions can seldom be made secretly. However, by skillful use of cover and concealment, the enemy may be deceived as to the point where the main blow of the attack is to fall. Generally his only information in this connection will be based on his knowledge of the density and depth of the deployment on different parts of the whole front. Special care in concealing reserves is desirable.

*First firing positions relate to the infantry, not to the artillery and machine guns.

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While the assaulting position in a stabilized situation may be selected prior to the assembly of the attacking troops, it is seldom practicable, in an open warfare situation, to designate definite first firing positions well in advance. The accuracy and volume of the hostile fire in most cases is the determining factor. While the regimental and battalion commanders should designate first firing positions within effective rifle range of the enemy, the platoon and company commanders should advance their units as close to the enemy as the losses permit before opening fire. The loss of a few men from artillery fire or stray rifle shots should not cause a premature halting and opening of fire by the infantry. The advance should reach at least effective rifle range before opening fire, and if circumstances permit should gain a closer position.

In the open warfare situation fog, darkness and smoke can often be taken advantage of to conceal the infantry advance, even up to the assaulting position. When this is practicable, the troops should be handled in a manner similar to that stated for the stabilized situation. *In fact, hereafter, in most offensives the advantages of delaying an attack for the purpose of utilizing the cover of darkness for an advance to an assaulting position must be thoroughly weighed in comparison with the time element.*

During the advance to first firing positions, the leading infantry units should be preceded by scouts, and if hostile covering forces have to be driven in, by a thin skirmish line; these advance elements force the enemy to disclose his position. The information gained determines locally the location of first firing positions and also the missions and the targets to be assigned.

Deployment, depth and frontage, and the forming of the troops for the attack are all influenced by similar factors.

The following are the principal factors that influence deployments:

(a) Nature of the attack.
(b) Enemy's strength and morale.
(c) Strength of enemy's defensive arrangements, including depth thereof.
(d) Mission assigned each attacking unit.
(e) Exposed or protected flanks.
(f) Amount of fire support required

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The nature of the attack influences the deployment from the viewpoint of duration and decisiveness. A fair estimate can be made of the duration of the fight when the enemy's available strength and probable intentions are known. Two extreme situations may be considered as examples. They are, a meeting engagement of small independent forces, and the attack of an army against a hostile defensive zone. In the former case the fight can be decided in hours, whereas in the latter continuous fighting for weeks may be necessary. In the former case the deployment should give sufficient depth to insure the retention of such fire superiority as will quickly carry the attacker to and through the assault. A depth of deployment giving five (5) men per yard may be considered as generally sufficient in such a situation. In the latter case the unit of measure is not men per yard but rather the number of divisions that will be available, in comparison to the enemy's like resources. So also, a distinction must be made between the local attack based on securing a limited objective, and a general attack seeking a decision.

The enemy's strength and morale affect the solution in the same general manner as that just described.

The enemy's defensive arrangements need consideration, especially from the viewpoint of their depth. If they include several successive positions, the depth of deployment should be sufficient to carry the attack through the entire defensive zone, maintaining continuity of command as long as possible. This will frequently require the passage of several lines as the attack progresses.

The whole front of the attack will not present the same hostile strength. This strength will vary with terrain features and the importance of certain parts of the front. Whether in the open warfare or stabilized situations, the attacker should plan to make his decisive blow with one part of his force while only engaging the enemy on the rest of the front. Therefore, the mission assigned each larger unit will influence its depth of deployment and, of course, its frontage. With the foregoing in mind and with a desire to maintain the integrity of organizations, the units designated to make the decisive attack are given nar-

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row fronts permitting great depth in deployment, while the units intended only to engage the enemy are assigned broader fronts and consequently have less depth of deployment.

Protection of the flanks requires special depth in deployment. Of course, this protection can be supplied by impassable obstacles or by the presence of neighboring troops.

The amount of fire support available influences deployment. Given a definite amount of light artillery its supporting power can be calculated. This supporting power is influenced by the need in each situation for barrage fire or for successive concentration fires. A battalion of light artillery can cover in average cases, the following fronts:

*Barrage fire { 300 yards or 600 yards } Depending on the density desired.

Successive concentrations, 800 yards.

Between the extremes given above are several intermediate solutions (see discussion of gas, *post*). It will be shown later that, considering only the artillery factor, the division may deploy on fronts varying from 1200 yards to 3200 yards.

The infantry deployment will be influenced by a balance between the support that the artillery can give and that which the situation requires. In other words, the width of infantry deployment will be somewhat influenced by the front that the available artillery can cover by its fire and the amount of artillery fire required in the special situation.

In addition to the artillery fire, the following should be considered in connection with the question of the influence of the barrage on the front of deployment:

The amount of machine gun fire available. In the average division attack, the machine gun barrage fire is equivalent to that of two artillery battalions.

The localities along the front and in depth that can be isolated by gas concentrations and blinded by smoke.

The deployment should be studied and determined by the following considerations:

(a) *In the open warfare situation*:

The amount of infantry fire in conjunction with the artillery and machine gun fire that will be needed to gain fire superiority at the first firing positions.

*See discussion of barrage fire, page 353.

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The infantry losses that may be expected and the reinforcements that will be needed to maintain fire superiority during the advance from the first firing positions to the assaulting positions.

The additional reinforcements that will be needed to carry the assault through the hostile defense.

The reserves that will be needed to hold the captured position, to meet counter-attacks, for flank protection and for pursuits.

The factors that influence deployments, given in a preceding paragraph, all affect the foregoing.

While each situation has its own peculiarities, in general it will be found that the attacker will require from three to five rifles per yard of front in open warfare situations.

(b) *In the stabilized situation*:

The number of hostile successive positions that have to be carried and the nature of their defenses.

The effect that the supporting artillery and machine gun fire will have in reducing the amount of infantry required to assault each hostile position. (The amount of artillery and machine guns available and the distance to the farthest hostile position in comparison with the effective range of the light artillery must be considered.)

The infantry fire in conjunction with the artillery and machine gun fire that will be required to gain and maintain fire superiority during the advance between the successive hostile positions.

The reserves that will be required to insure a continuous attack, to hold the captured position, to meet counter-attacks, to cover the flanks and for pursuits.

The factors that have been given as influencing deployments all affect the foregoing. In general it may be said that eight to ten rifles per yard of front are needed for such an attack. However, this does not include the reserve divisions held for a continuation of the attack.

As indicated in preceding paragraphs, aside from the local reserves required to maintain the fire superiority, a general reserve for each division should be held out for the final or decisive phase. In general terms, this reserve is employed to meet enveloping or large counter-attacks, to fill gaps in the line, to carry out the pursuit, and, if necessary, to cover withdrawal. It is the commander's means for shifting the decisive point of the action as he sees fit. In the stabilized situation, the division reserve will frequently be used to relieve front line units. However, the unit relieved will generally become the division reserve. In addition, the artillery of the division and the division machine gun battalion should be looked upon as a division reserve, since by

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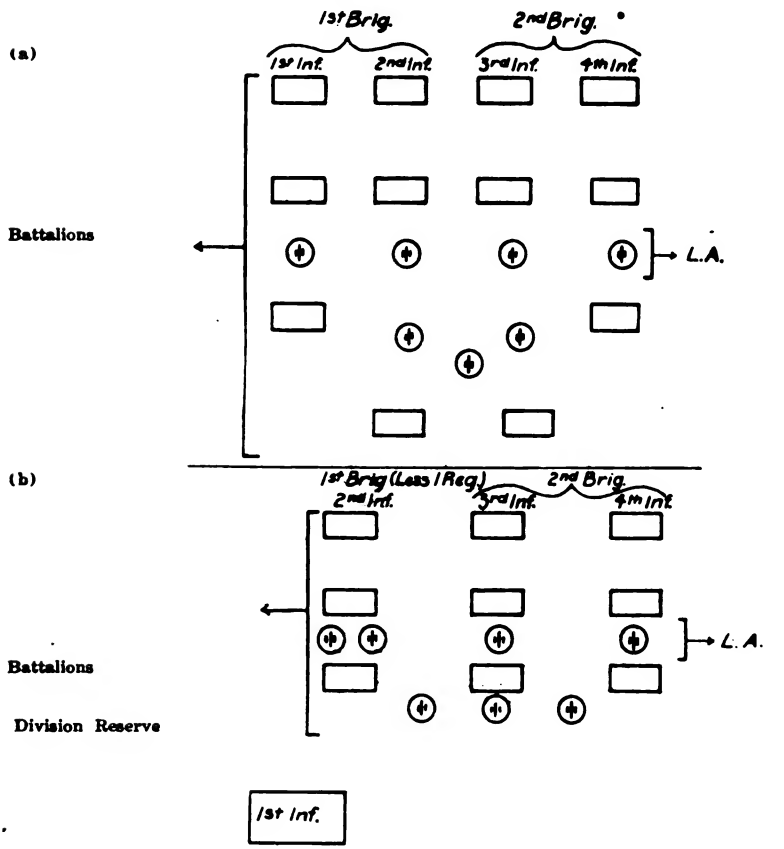
concentrating their fire on decisive points the division commander can greatly influence the situation at critical times.

The following diagrams illustrate various deployments of the infantry division. Diagrams No. 6 (a) (b) (c) (d) and (e) represent deployments in a frontal or penetrating attack in either open warfare or stabilized situations. Diagrams No. 6 (f) (g) and (h) represent deployments of a division acting alone in an enveloping attack.

DIAGRAM NO. 6, DIVISIONAL DEPLOYMENTS



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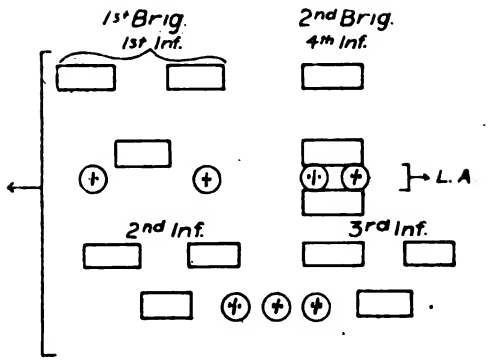
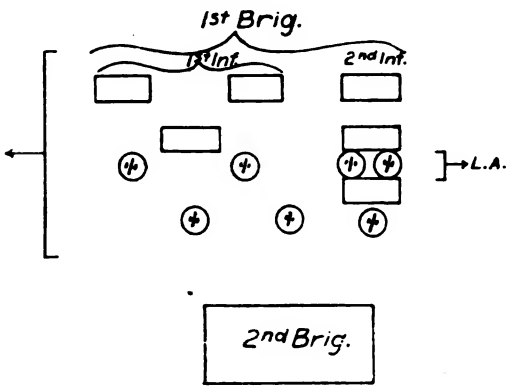
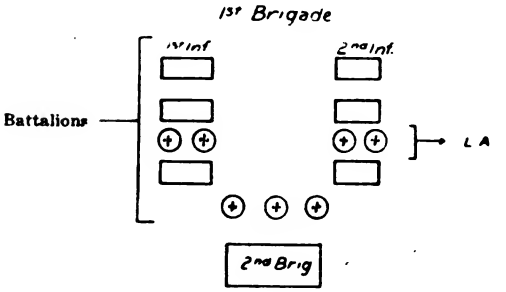
(c)



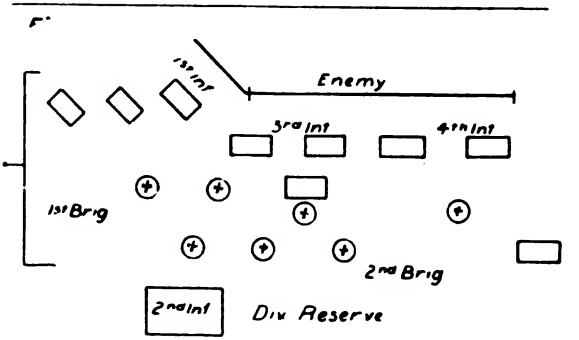
(d)



(e)



(f)



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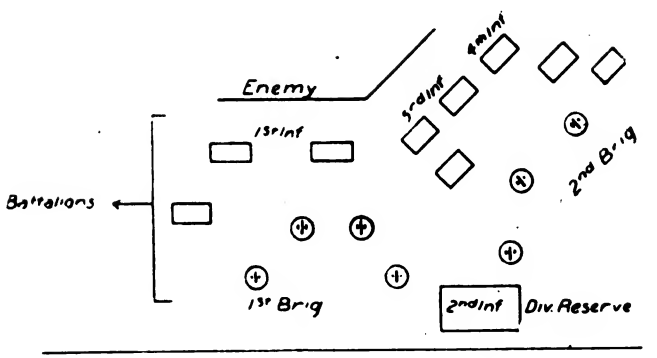
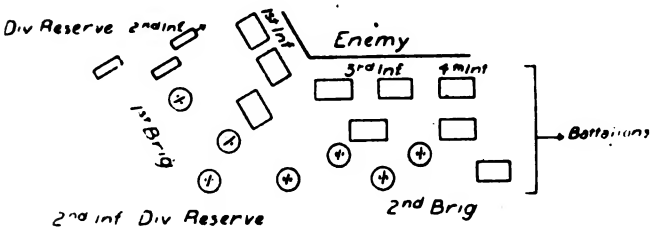
(g)



(h)



In connection with these diagrams the varying distribution of the light artillery is to be noted. This distribution shows the influence of the amount of artillery fire available on the deployment of the division.

In diagram No. 6 (a) one light artillery battalion supports one infantry battalion. The succeeding diagrams give modifications of the first. In some cases a whole light artillery regiment supports an infantry battalion. Diagram 6 (e) shows the division deployed in great depth on a two-battalion front with a light artillery regiment supporting each infantry battalion. This deployment was frequently used in the operations of the American 1st Army in the World War. It is suitable for attacks against defensive zones, and when the division expects to fight continuously for a long period exceedingly strong artillery support is supplied.

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In the diagrams the deploying fronts of the division may be taken to be approximately as follows:*

6 (a)	— 2300 yds.—	Rifles	per	yd.	of	front— 6.
6 (b)	— 1700 " —	"	"	"		— 8.
6 (c)	— 1600 " —	"	"	"		— 8.4
6 (d)	— 1600 " —	"	"	"		— 8.4
6 (e)	— 1200 " —	"	"	"		—11.3
6 (f)	— 3300 " —	"	"	"		— 4.
6 (g)	— 2800 " —	"	"	"		— 4.8
6 (h)	— 2400 " —	"	"	"		— 5.6

The average front of deployment of the division can be placed at about 1¼ to 1½miles. This is given only as a guide. Many conditions will enter which influence it, such as a large reinforcement of artillery in conjunction with a limited objective attack. In other words, the greater the reinforcement of artillery the larger the front of attack. However, *an ability to make deep penetrations and to carry on a continuous fight for an extended period is greatly lessened by wide deployments, irrespective of the artillery strength.*

In both open warfare and stabilized situations, the artillery preparation has the same ends in view, namely, moral effect, destruction of hostile batteries, observation posts, cover for hostile infantry and obstacles, and the blocking of the enemy's roads and the isolation of areas by gas concentrations. There are differences between the open warfare and stabilized situations in this connection:

During the approach march and advance to first firing positions, our own artillery will generally have to keep the enemy's artillery fire down in order to cover the advance of our own infantry.

The use of smoke to blind the enemy, especially during the advance in the open warfare situation, may be advantageous.

During the artillery preparation period, the hostile aircraft (combat and observation) should be kept at a distance, not only by our own aircraft but also by our anti-aircraft artillery and machine guns.

In the stabilized situation, it is not always necessary or desirable to have a preliminary artillery preparation. The element of surprise greatly affects this question, as does the destruction of obstacles.

Gas concentrations were used advantageously during the latter part of the World War. However, it is not felt that full use was made of this new weapon in either the offensive or defensive. This was due to a shortage of gas

*Division rifle strength taken at 13,568, i. e., one brigade, 6784×2=13,568. Deploying front of battalions taken at 400 or 500 yards. Intervals between battalions taken at 100 to 200 yards. Interval between holding and enveloping attacks taken at 100 to 300 yards as lines converge on enemy. Machine guns not considered.

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shells and, also, to lack of experience combined with a psychological fear of accidents.

There is no doubt that in the future gas will be employed in offensives to isolate strong points, woods, and the like, permitting the advance to pass them by the flanks. Such employment of gas will lessen the need for the rolling barrage and, of course, permit the divisional artillery to cover a much wider front. The gas concentrations can be completed before the barrage starts.

As has been indicated each organization down to the assaulting companies and platoons should receive definite orders assigning to it a *zone of action, mission* or *objective.*

The *zone of action* of a unit prescribes the lane in which it should push forward its attack. At the same time, it is not restricted beyond reason to such a lane, as cases arise frequently when an advance of a part of the command through the side of an adjacent zone will be advantageous. Nor should the prescribing of a zone prohibit in any way the mutual assistance that adjacent units should afford each other. Conferences between adjacent commanders should be held to arrange such matters. *The tactical teamplay secured thereby is the sure road to success.*

Zones of action should be selected after due study of the enemy's strength and dispositions, and the terrain. They should not be laid out perfunctorily or in straight lines irrespective of the above stated elements. A careful study of the whole front under consideration will result in a subdivision thereof which will give to each subordinate unit some definite task or tasks to perform other than an advance straight to the front.

The zone of action should be defined well beyond the mission or hostile position. It should cover at least the possible advance for each day.

During the late war a great variety of objectives was developed such as "first, second, etc., objectives," "intermediate objectives," "final objectives," "eventual objectives," etc. It will be well to forget all such terminology. It is the product of limited and indecisive attacks and an exaggerated view of the tactical value of limited attacks based solely on artillery fire. This whole question may be boiled down to the following:

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(a) In every attack (in either open warfare or stablized situations) all attacking units should have assigned them either a definite mission or a definite objective.

(b) The term *mission* may here be taken to mean a specific task or undertaking relating to hostile troops rather than to terrain features. As examples, there may be taken the mission of "enveloping the enemy's left flank," or an order "to attack an enemy in (such and such) position." Missions apply primarily to open warfare situations.

The term *objective* describes a terrain feature to be reached in the course of the attack. Objectives apply primarily to attacks against defensive zones.

(c) Depending upon the size of the force considered and whether it is operating independently or as a part of a larger command, the accomplishment of the mission or the reaching of the objective may contemplate fighting for several days or for only one day. However, in a division attack, the mission or objective assigned to each subordinate unit should insure the maximum advance possible in one day.

(d) *Objective* instead of *mission* is generally employed when some limitations have to be placed on the advance of the attack. The main purpose of prescribing objectives or limitations is to afford an opportunity for the co-ordination of the work of all arms and to insure concerted efforts by the whole force. The limitations may apply to the depth of the attack or to rate of the advance or to both.

Objectives limiting the depth of the attack should be employed only under two conditions:

(a) If the attack is only a local operation intended to secure some special terrain or other feature. These attacks are known as "limited objective" attacks. Except from a local viewpoint, they produce no decisive results and should not be employed when more general results are desired. They have limited application.

(b) If the attack contemplates a "break through" of the enemy's positions, the use of limiting objectives in a strict sense is a mistake, as lower units cannot take advantage of opportunities, and initiative is lost. However, a distant objective may be designated in such cases for the two-fold purpose of acting as an incentive to the troops and as a locality where the infantry and artillery action will have to be re-coordinated. Such an objective should be placed at about the maximum depth of advance that is believed possible for the day. Troops should not consider a halt on such an objective as binding, if the tactical situation favors a continuation of the advance.

The *objectives* indicated in the foregoing should not be confused with the measures necessary to co-ordinate the rate of advance of the infantry and the rolling barrage when the latter is used. Except in a limited attack, the infantry advance and the rolling barrage should progress at predetermined rates to the limit of the initial artillery range, when the infantry should continue forward without such limitations. Only in the "limited objective" attack should the infantry advance be halted to insure an extension of the

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artillery barrage beyond its initial limits. (See discussion of barrage, page 353).

THE ATTACK (FIRE AND MOVEMENT)

In both the open warfare and the stabilized situation, the attack endeavors to gain such fire superiority as will permit the advance to continue. The combination of fire and movement is therefore found in both situations.

In the open warfare situation, the advancing infantry encounters infantry fire at a distance that requires an advance of some hundreds of yards before an assaulting position is reached. An initial fire superiority will have to be gained over the distant hostile troops. After the initial fire superiority has been gained, the action will comprise successive rushes covered by the fire of all arms. In some cases the enemy may have advanced positions that must be reduced before his main forces can be reached. These positions are handled in the manner described below for the enemy's intermediate positions.

The maintenance of the fire superiority that is essential to an advance in the situation indicated above will require reinforcing the firing line to replace losses and to keep up the fire volume. Sufficient depth of deployment is therefore required for this purpose as well as to insure a fresh impulse for the assault.

In the stabilized situation, the advance to an assaulting position (in front of the enemy's second position) will encounter several hostile mutually supporting intermediate positions, including machine gun nests. Instead of the successive rushes, as described above, steps will have to be taken for the reduction of these intermediate positions. These steps will involve local combats which will be made up of local frontal and enveloping attacks carried out by platoons and companies, and even battalions. In each local fight fire superiority is gained by a combination of all arms, and the position is eventually reduced by local outflanking and assault or by frontal assault. In the interval between the hostile intermediate positions, or following their reduction, the advance continues until other positions are encountered, and so on.

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The reduction of the hostile intermediate positions is essential to a continuance of the advance. However, without delaying therefor, local reserves should be pushed forward into the openings in and through weak parts of the enemy's lines in order to gain ground and, eventually, an assaulting position in front of the enemy's second position. Depth of deployment, supplying successive reserves, is essential to success in the foregoing mode of action. In the reduction of the intermediate positions, all arms—the infantry itself, artillery, machine guns, and infantry special arms—are employed in combination in each local fight whenever necessary and possible.

The artillery support required in the two situations indicated above should be along the following lines:

Open warfare situations.—In the advance from first firing positions, the greatest help that the artillery can give the infantry will be to keep down the enemy's artillery fire and to assist in diminishing his rifle and machine gun fire. The relative importance of these two classes of fire to our own infantry will differ in each situation and in the various phases of each situation.

Unless our artillery is able to neutralize the hostile artillery the latter may drop down several counter-preparation barrages, which will prove expensive to our infantry in passing through them. Of course, the employment of such barrages by the enemy is predicated upon a good supply of ammunition, which is not always the case, especially in meeting engagements. The neutralization of the hostile artillery should, if necessary, start during the approach march.

With the neutralization of the hostile artillery as its primary function, our artillery should be prepared to turn its fire on the hostile infantry and machine guns. This fire may take the form of successive concentrations against various parts of the enemy's line, or that of a standing or zone barrage placed along his front. If sufficient ammunition is available, and supposing the hostile artillery to be neutralized by other artillery, the standing barrage should materially assist the infantry advance. Under any circumstances, periodical concentrations of fixed durations should

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be laid down at definite times previously announced to the infantry. The latter can then expedite its rushes during these periods.

The stabilized situation.—The artillery support may embrace one or both of the following methods:

A continuation of the rolling barrage beyond the hostile first position. This method has advantages and disadvantages, as shown below.

Advancing some of the artillery in close support of the infantry, i. e., infantry batteries and accompanying guns. These organizations, as a part of smaller infantry commands, go forward and, when the main artillery force can not respond, open fire to meet the infantry needs as they appear.

A combination of the two methods gives the best results, that is, the extension of the artillery barrage used for the assault to the limit of the range from the artillery's initial position; and thereafter, the employment of the infantry batteries and accompanying guns until the main artillery can move forward and be reunited under the control of the artillery brigade commander.

The rolling barrage consists of a belt of fire that precedes the infantry and covers its whole front. The purpose of this class of fire is to force the enemy to keep under cover until the advancing infantry reaches assaulting distance. A barrage may be made by artillery fire, by machine gun fire, by tanks, or by any combination of the three. It has varying qualities of depth, density and rate of advance. The great advantage of the barrage lies in the fact that it searches out the whole area and frequently destroys hostile machine guns which might not be discovered by the infantry until after the latter had suffered losses. However, in order to accomplish this the barrage should cover practically the whole front of the advancing infantry, unless gas and smoke concentrations are used to isolate certain localities and no necessity for such action exists in others.

The disadvantages of the rolling barrage are:

(a) The infantry in all its movements is subordinated to the advance of the barrage. It acts like an advancing wall in front of the infantry, limiting all of its activities. The infantry is given no opportunity for tactical maneuver;

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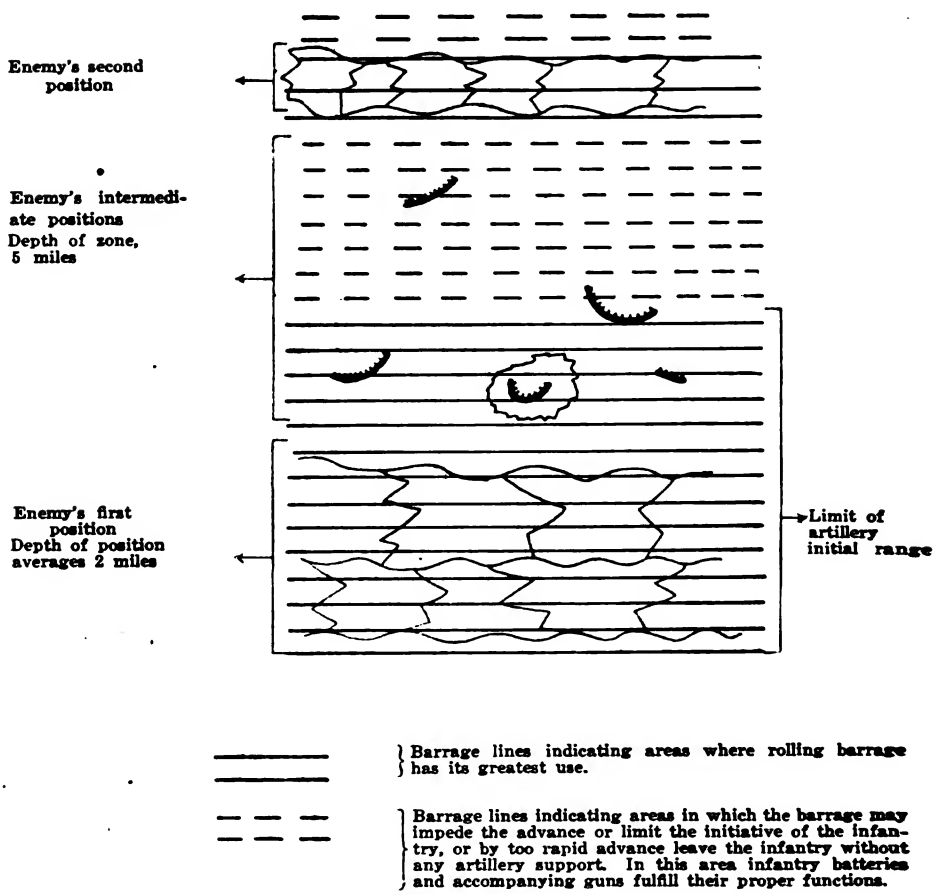
it must advance straight to the front. The enemy is not by any means totally destroyed by the barrage. After the barrage passes, the enemy opens a destructive machine gun or other fire, to which the infantry can respond by frontal action only. The infantry has no room for flanking work or teamplay.

DIAGRAM NO. 7, ROLLING BARRAGE



Then again, many weak points will be found in the enemy's line, especially between his main positions, yet because of the barrier made by its own barrage, the infantry is limited in taking advantage of these weaknesses (see diagram No. 7).

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There is another side to this question. The rolling barrage frequently advances faster than the infantry when the latter is delayed by local infantry combats or unforeseen difficulties of terrain. This results in the infantry concerned having to attack local resistance unaided by any artillery, unless infantry batteries or accompanying guns are available.

(b) In order to maintain the rolling barrage during the entire depth of the probable advance, the infantry must halt at the limit of the artillery's initial range until guns can be advanced to a closer position. The defeated and demoralized enemy thereby gains time to reorganize and to bring up his reserves. The decisive effect of a surprise attack may thus be lost.

In attempts to maintain the barrage continuously throughout the depth of the attack, battalions of artillery may be advanced in echelon. However, the density and depth of the barrage during such a phase so falls off that little material effect may be expected. In fact, it will frequently be more effective to utilize these advanced batteries in "concentration fires."

(c) Except in a stabilized situation, sufficient amunition can hardly be made available for the maintenance of a deep barrage in an average advance.*

(d) The theory of "the insuperability of the barrage" is a fad that was exposed to the American infantryman by his practical experience of 1918.

A barrage is not impassable and it does not destroy the main hostile opposition. Good infantry has passed and will again pass through a hostile barrage and will not be driven from its position by barrage fire. Numerous examples of this occurred in the World War.

Where a rolling barrage is employed, a rate of advance should be announced. Three factors need consideration in this connection:

(a) The rate of advance that the infantry can probably make, bearing in mind the nature of the terrain, obstacles and the

*Assuming an advance of 7 miles at the rate of 100 yards in 6 minutes, the advance will last

$$\frac{7 \text{ mi.} \times 6 \text{ min.}}{100 \text{ yards}} = \frac{12320 \text{ yards} \times 6 \text{ min.}}{100 \text{ yards}} = 123.20 \times 6 = 739.2 \text{ minutes.}$$

$739.2 \times 2 = 1478.$ + rounds, or about "5 days of fire" per gun.

To make such an advance, the infantry must be halted until the artillery is resupplied with ammunition.

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amount of opposition to be expected.

(b) The density of the barrage, which is *decreased* locally by long jumps.

(c) *The element of surprise in the higher commander's plan.* A slow advance may nullify the initial surprise gained by preliminary arrangements.

Unless the surprise element indicates otherwise, the average situation may be met by the following rates:

(a) In the open and down hills	100 yards in	4 minutes.
(b) Up hill	100 yards in	6 minutes.
(c) Through woods	100 yards in	8 minutes.

The surprise element may demand an advance at 100 yards in three minutes.

In view of the foregoing, it is evident that there is a limit to the usefulness of the rolling barrage. In attacks in which the advance is limited to a depth equal to the initial range of the guns, the barrage has its greatest use. However, in attacks of greater depth, and especially in attacks seeking decision, the solution should result from a proper balancing of the advantages and disadvantages of the barrage. Bearing in mind that a decision can only be secured by the infantry, the rolling barrage should generally be employed in such phases as will not interfere with the proper tactical employment of the infantry. In general, these phases are limited to assaults of positions organized in several lines, which limit the infantry's local action to purely frontal attacks.

The foregoing brings up the question of "infantry batteries" and "accompanying guns." In the initial phase of most attack situations the whole artillery can be more efficiently employed under the control of the artillery brigade commander. However, in any successful attack, a time will arrive when subordinate artillery units must either break away from the control of the artillery brigade commander or fail in their sole mission of supporting the attacking infantry.

The attacking infantry will not "break through" the whole of the enemy's front at the same time. Weaknesses will be found in some parts and irreducible strength in others. Local infantry units, taking advantage of the enemy's weaknesses, push forward as rapidly as possible and thus cause the hostile strong points to fall, often solely by a threat to take them in reverse. The foregoing results

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in local combats, and local subordinate commands, while affording each other mutual support, carry out the immediate attacks and advances independently. These local commands require artillery units operating directly under the local infantry commanders. This local commander is the only one who can give intelligent orders in the premises.

It is therefore essential that the preliminary arrangements for any decisive attack provide for the above conditions. If the artillery that is to accompany the infantry can be utilized in the rolling barrage fire and still be available in time for the support of the local infantry commands, so much the better. However, the desire to hold all the artillery under the control of the artillery brigade commander should not be allowed to outweigh the necessity for the action indicated above.

Frequent reference has been made in the preceding pages to the mutual supporting functions of adjacent infantry units. Too much stress cannot be laid on this point. *Subordinate infantry units must not let themselves be tied down to their zones of action at the sacrifice of tactical team-play.* When mutual supporting assistance can be foreseen, provision therefor should be made in the formal attack orders.

"Connecting groups" have been described. It is important to realize that these units have a security function as well as a contact duty. They should protect the flanks of their own and adjacent units. They are not limited to defensive action for this purpose. A surprise attack against a hostile flank will frequently be more decisive. These groups advance by bounds from cover to cover and in general keep up with the assaulting battalions.

Machine gun support.—An important development of the attack is the offensive power of machine guns. By employment of overhead and, if necessary indirect fire, machine guns following close behind the infantry assault lines can lend invaluable support to the attacking infantry. The fire of the machine guns, coupled with the other infantry auxiliary arms, is most efficacious against hostile machine gun nests. The machine guns should work in sections mutually supporting one another in the advance, that is, one section

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should be covering its infantry while another advances. The section therefore advances in rushes in a manner similar to that of the infantry. Few machine guns should be held in reserve. This fire power should be utilized from the beginning. The machine gun barrage has increased in efficiency and is a valuable supplement to the artillery barrage. The barrage fires of these two weapons should be co-ordinated on the whole front. The machine gun barrage is mainly advantageous in the beginning of attacks.

THE ASSAULT

Good infantry cannot be dislodged by fire alone. An assault and hand to hand fighting are essential for a decisive success.

Assaults may be considered under two classes, which are the combined and simultaneous assault of large units and the local assault of subordinate units.

The combined and simultaneous assault of large units is practicable only in stabilized situations or where the command has halted for some time in close touch with the hostile main forces. The best illustrations of this class of assaults are the initiation of the various offensives on the western front in 1915, 1916, 1917. The characteristics of these assaults are:

(a) Co-ordinated and simultaneous effort by all elements of the command. This was secured by careful preparation covering periods of weeks, and by prescribing in great detail the tasks and methods of executing them for all units. Little or no initiative was left to the subordinate.

(b) An overpowering artillery fire which neutralized the hostile batteries and forced the hostile infantry to remain under cover until the assaulting infantry could engage it in hand to hand fighting.

(c) The advance in each assault was limited to the range of the light guns.

(d) The assault was not always launched as a surprise.

Assaults of the above description were discarded in 1918 in so far as limiting the advance to the range of the light guns is concerned. In 1918 surprise assaults were made which developed into unlimited attacks and resulted in deep penetrations. This form of assault is adapted to the stabilized situation that is being considered. It should be adopted in the assault against the hostile first position and at times in the assault against his second and rear posi-

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tions. However, the full advantage of the surprise should not be lost by delaying the assault against the second and rear positions in order to make it simultaneous on the whole front. In most cases, the best results will be secured in these latter assaults by following the principles given below for local assaults. It should be kept in mind that these combined and co-ordinated assaults can seldom be successfully executed without detailed preliminary arrangements involving days and often weeks.

The following may be considered as the important tactical principles now considered to be involved in these combined assaults:

(a) The infantry should be deployed in such depth as will insure continuous fighting for a long period. This is secured by passing forward rear battalions (reserves) to take over the tasks of the worn out front line units. This "passage of lines" is generally carried out by complete battalions, each front line battalion completing an assigned phase of the attack before relief.

(b) The assault of the enemy's first position is followed without delay or even halt by an advance to the enemy's rear position. The infantry has assigned to it for this purpose supporting artillery which accompanies infantry regiments and battalions.

(c) The artillery and some machine guns cover the entire hostile zone with concentrations of fire and, up to the limit of the range of the light guns, precede the infantry advance with a barrage. Following this, the infantry is supported by the artillery and machine guns that accompany it. This last named support is again augmented as the remainder of the artillery and machine guns can push forward.

(d) The initial assault is made simultaneously on the whole front. The main part of the troops push through the enemy's labyrinth of trenches while small parties are left to "clean up" the trenches. The main object of the assaulting troops is to gain the rear of the hostile defenses. If the mere presence of our troops in the enemy's rear does not cause the fall of his strong points, then assaults that take them in reverse should do so. There is no methodical advance from trench to trench. Advantage is taken of the weak parts of the enemy's positions to push forward strong forces which in turn cause his strong points to fall.

(e) The deployment and the plan of the attack are based on the weak points of the enemy's defenses as well as on the nature of the terrain. Strong forces deployed in great depth should be massed in front of the hostile weak fronts, seeking to drive through by continuous pressure; while weak forces should be placed in front of the enemy's strong points for holding attacks.

The foregoing mode of action produces salients and reentrants which, combined with the surprise effect, cause the enemy to give way on his whole front.

The class of assaults known as the local assaults of subordinate units is applicable to open warfare situations, and

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generally to that phase of the stabilized situation after the first hostile position has been passed.

These assaults are based on taking advantage of every tactical opportunity that results from surprising the enemy, of every local success, and of relative advantages of position. If an attempt is made in such situations to co-ordinate the assaults of the whole command on the basis of time and place, fleeting tactical opportunities will be lost.

In these situations success is gained by assigning to each subordinate command all the way down to battalions and companies such missions and zones of action as will insure the combined success of the whole. Within the limits of his zone, and restricted only by his mission, the subordinate commander is given full freedom of action and initiative. The tactical training of the subordinate should insure his playing in the team and rendering mutual help to adjacent units. Battalion commanders then will generally initiate the local assaults in order to grasp fleeting opportunities.

In situations as indicated above, it is evident that a barrage of artillery and machine gun fire covering the whole front is impracticable. The closest connection between the smaller infantry units and their supporting artillery and machine guns is therefore essential. The local assaults, initiated by local infantry commanders, should be supported by artillery and machine gun fire. This combination can hardly be secured unless infantry battalion commanders are in close touch with their supporting arms.

In the open warfare situation, another class of assaults should be considered which involves the employment of the division and larger reserves. The higher commander will frequently find such action necessary, and he should not hesitate to employ his reserve to secure the decision. This will involve launching the reserve in a decisive assault against some part of the hostile line. Under such conditions all force and power available should be brought to bear on the decisive part of the battlefield. An important factor at this time, aside from his reserve, is the division commander's ability to concentrate the fire of most of his artillery for the above purpose on short notice.

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The decision to employ the division reserves in such a decisive blow will frequently have to be made irrespective of the tactical situation on the various parts of the front. It is therefore essential that the division commander, through his artillery commander, be able to control the fire of the majority of his guns. While the subordinate artillery units must have close touch with the infantry battalions that they support directly, they should at the same time be prepared to respond to the division commander's orders for any concentration of fire.

In the foregoing the necessity of fire support for each local assault has been indicated. This necessity should be kept in mind as, in the future, positions or formations distributed in great depth will undoubtedly be encountered. The defensive value of the machine gun alone will prompt great depth. Increased fire support will be required to carry the assault from one local hostile element to another until the whole hostile defense is cleared.

This fire support for local assaults may be secured in several ways:

(a) While an artillery and machine gun barrage on the whole front of the entire command is seldom practicable, it can frequently be secured on the front of a local assault and be carried forward in advance of the assault. Often, the time involved in arranging for such a barrage is well worth the delay.

(b) The foregoing statement applies with greater force to the barrages of machine guns, due to the greater mobility and the closer relation to the infantry of the machine guns.

(c) The special infantry weapons (37 mm. guns, Stokes mortars, rifle grenades and infantry howitzers) should be employed in conjunction with the assault.

(d) Adjacent infantry units should lend mutual support by fire. If this cannot be arranged for by conferences between commanders, the adjacent unit should, on its own initiative, support by fire the assault of a neighboring unit as soon as it sees the assault start.

THE PURSUIT

There is no necessity for discussing here in detail the question of pursuits, as they are covered elsewhere. It will be well at this time to note, however, the desirability of applying some of the principles of pursuits to that phase of the stabilized situation which follows the capture of the hostile first position. Once the hostile first position is captured, all infantry units advance as rapidly as they can through any openings or weak points found in

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the enemy's resistance. Such a procedure will open the way for the flanking or taking in reverse of hostile strong points. It also makes possible the gaining of a footing in the hostile second position before the full benefit of a surprise is lost.

Forms of Attack

In considering the various forms of attack, the discussion will be based primarily on an independent force, that is, one free to act to its front and flanks. While the relative size of such a force affects the manner of executing the attack, this element has little bearing on a general discussion of forms of attack. Later, the application of these forms of attack to a force as an integral part of a larger command will be considered.

Linear Tactics and Tactics in Depth

The assumption of the offensive presupposes, in theory at least, that the attacker is the stronger in infantry. This superiority may be employed to advantage in one of two ways:

(a) By a deployment on a narrow front is secured a depth of formation which results in a succession of lines or units that present to the weaker side (enemy) a constantly renewed pressure. Such action will wear out the weaker force by repeated blows delivered by fresh troops, and will force him to succumb. This is an application of tactics in depth.

(b) By a wide extension of front, all or practically all of the fire power available may be brought to bear on the enemy from the very beginning of the attack. By this means the weaker force is overpowered by a concerted superior fire effort. This is an application of linear tactics.

The two general forms indicated above have been the basis for all discussions of the tactical offensive. Attack doctrines have swayed back and forth between these two extremes during all military history. If therefore a correct view of the principles involved in these two forms is secured, it should be possible to make a sound decision as to their application at the present time.

In the early days the fighting consisted primarily of shock action, which required a deep formation resulting in mass or column tactics. With the invention of fire arms and their improvement and development, fire power became the predominant factor in the attack. This resulted in a de-

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ployment in line on a wide front in order to secure from the beginning the simultaneous employment of as much fire power as possible. The two primary factors of consideration, shock action and fire power, are therefore deduced. Experience teaches that neither shock action nor fire power can win alone. The modern tactics of the offensive has been based on the combination of these two factors. In other words, modern thought dictates the employment of the fire power to open the way for the shock action which strikes the decisive blow. There has resulted a compromise between the two extremes given above, which provides for a team employment of fire power and shock action.

With the foregoing combination, a third factor has to be considered, and this is, the effect of numbers at a decisive point. The enemy will have weak points in his dispositions. He will not be uniformly strong everywhere. These weaknesses may be natural or may result from our own fire power, and may occur on his flank or at various places along his line. They may be determined before launching the attack, or as the action develops. It is against these weak points that the main combined fire and shock action is directed to gain the decision.

If the enemy's weak points can be determined before the attack is launched, our strength can be concentrated against the recognized decisive point in our initial deployment. If, however, the determination of the hostile weakness must await the developments of the action, there must then be available a mobile force which can be quickly launched against the weak point when it develops.

With the introduction of artillery, and especially the long range of modern artillery and aerial observation and bombardment, another factor has to be considered. This is cover or concealment for the infantry in its advance. While our own artillery and air service will to some extent neutralize the hostile artillery and air service, it is essential that means be employed whereby the attacking infantry can be advanced, first, to within effective rifle range, and, second, to within assaulting distance of the enemy, without serious losses caused by hostile artillery and aerial fire.

To the foregoing main factors, then should be added those relating to psychology and to the utilization of su-

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perior forces and superior determination. In the category of pyschology are included surprise and morale.

There are, therefore, six main factors for consideration in determining the form of attack, namely, fire power, shock action, concentration of superior strength against the decisive point, cover or concealment for the advancing infantry, psychology and the utilization of superior forces and superior determination.

Fire Power

During the World War several developments took place which greatly affect fire power. These may be briefly indicated as follows:

(a) The increase in the volume of rifle, machine gun and light artillery fire, and the possibility of aerial bombardments has forced the employment of very loose infantry formations. This applies to the defense as well as to the attack. It is for the purpose of avoiding losses and of facilitating the full use of natural cover or concealment. At the same time, these loose formations have to be somewhat restricted by the necessity of control.

(b) The auto rifle and the increase in range and overhead firing capabilities of the machine gun and light artillery permit the defense to be disposed in great depth. In fact there will seldom be found in the future the one line defense of the past, but rather a zone defense of varying depth. The fire power of the offense must be applied to this zone rather than to one line.

(c) In the past, superiority of fire has been considered from the sole viewpoint of the infantry arms. It is now essential that this consideration include the combined employment for this purpose of the infantry arms—rifle, auto rifle, rifle grenade, one-pounder and Stokes mortar (or an equivalent piece)—the machine gun, light artillery shell, shrapnel and gas, and aerial fires. The barrage (standing and rolling) is a product of the above viewpoint.

(d) The capabilities of flanking fire have increased with the introduction of the auto rifle and the increased efficiency of the machine gun. These advantages rest more with the defense, but the attacker should utilize them to the utmost. While this factor dictates an extension of the attacker's front, the increased ability of the defender to meet this extension counter-balances it.

(e) Aerial observation and artillery fire control has enhanced the value of cover or concealment.

(f) The capabilities of overhead fire have greatly increased.

It is therefore evident that extension for the purpose of initial increase of fire power is restricted by the necessity of applying it in depth as well as in width, and by the factor of control. These restrictions are compensated for by the employment of overhead fire and the availability of support and reserves which maintain the volume of fire, not only during the initial stages of the attack but also during the

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advance through the defensive zone. There results then a thin firing line backed up by overhead fire and close supports and local reserves. *The number of men required per yard has not changed, only the formation.*

Shock Action

The experience of the World War has increased the value of shock action on the part of the infantry. Decisive results can be secured only by an actual or threatened shock. However, the increase in depth and the flanking and overhead fire capabilities of the defensive, coupled with the more general use of artificial cover, have made necessary the availability of local reserves, which assist in local assaults and replace worn out troops. The defeat of the defense will seldom be accomplished until the infantry has forced its way through several defensive lines. Therefore depth in deployment is required at decisive points, if a decisive shock is to be delivered.

Concentration of Superior Strength Against a Decisive Point

The concentration of superior strength against a decisive point has been discussed in earlier paragraphs. The discussion of this phase of the question seems to be sufficient, except to emphasize the necessity for the attacker to concentrate his power in a main effort. Success cannot be expected if the attacker's power and the weight of his blow are distributed uniformly over the whole of the enemy's front. The plan of attack, no matter what its form, should be based on a decisive or main blow in which the greatest strength possible should be concentrated. The strength on the rest of the front should be limited to that necessary to engage and contain the enemy. *This principle is essential to all forms of attack.*

The application of the foregoing principle is the difficult task of the superior commander. In general terms, he has the choice of three modes of action, which are, to concentrate in the initial disposition of his troops (a) against a hostile flank, or (b) against some part of the hostile front, or (c) to retain in hand sufficient forces to adopt later either of the

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above modes of action, depending upon developments in the course of the attack. These three modes of attack will be taken up separately.

(a) All other factors being equal, the selection of the first mode of action is governed mainly by the relative strength and terrain advantages. The envelopment or turning movement, which is here discussed, is really the extension heretofore mentioned under fire power. The peculiarities of these forms of attack will be discussed later.

There can be no question of the advantages and advisability of the above mode of action when the attacker is greatly superior. By attacking the hostile flanks, he derives the full benefit of his superior numbers, not only in fire power but also in shock action. There is, however, the question of how great the superiority of the attacker should be to warrant the adoption of this mode of action in the *initial stages of the attack.* A brief consideration of the defense is necessary to sound conclusions on this point.

The defender will plan his defense to meet a flank attack. He will present a strong front to the flank attack. He can even afford to make his flanking front stronger in fire power than his original front, as he will have selected the latter with a view to economizing forces for use in the former. There are to be added to the foregoing the advantages of defense in depth, overhead fire and the increased flanking capabilities of modern infantry arms. This will result in the flanking wing making a frontal attack. The one advantage, greater fire power concentrated upon the vertex of the hostile lines, is purely local and is greatly offset by the defense in depth. In small forces the crumbling of this local point should have a vital effect which will not be found in larger forces.

Considering *relative strength only,* it seems evident that the initial selection of a flank for the decisive blow favors the defender when the opposing forces are of equal strength. As the assailant's superiority in numbers grows he can either extend farther than the defender can, or he can mass in depth a stronger force against the defender's over-extended flank. Bearing in mind that the attacker must generally utilize larger forces to develop the enemy's original front and to contain him there than the defender

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will need to hold his selected position, the minimum superiority warranting a predetermined decisive blow against a hostile flank may be placed at about one-third.

The advantages of terrain relate primarily to cover for the advancing infantry, to observation, and to increasing the chances of surprise. A good field of fire counter-balances the assumed numerical weakness of the defense. The line of advance that permits the attacking infantry to reach close range without serious losses is an important factor, whether this be found on the defender's flank or along his front. Closely related to the above is the advantage gained by such cover as permits the attacker to concentrate decisive numbers, unknown to the enemy, against a special part of the hostile line. Whether such terrain features are found on the enemy's flank or along his front has great weight in the initial selection of the decisive point of attack.

In addition to the foregoing, the question of terrain enters into the consideration from three other viewpoints. If the enemy has rested his flank on impassable obstacles or terrain difficult to traverse, the decisive blow must be driven against the hostile front. If the enemy has one flank protected by natural features there can be no surprise in striking the other flank, and in fact our numerical superiority of one-third, *not considering other factors,* will hardly be sufficient to warant a predetermined selection of the only available flank for the decisive blow. When both hostile flanks are exposed, the element of surprise plays its greatest part (forcing the enemy to be prepared on both flanks) and frequently permits the attacker, although not greatly superior, to predetermine one of the hostile flanks as the decisive point of his attack.

(b) Two plans need consideration in connection with a predetermined selection of a part of the hostile original front for the decisive blow. As indicated above, with the hostile flanks protected by natural obstacles, there is no choice. With either one or both hostile flanks exposed, the cover offered by the terrain and any weaknesses in the hostile defenses may dictate that a flanking attack be made with a view to containing the enemy while the decisive blow

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is launched against the enemy's original front. The initial selection of this mode of action is based on finding better cover along the front than on the flanks for the concentration of the decisive numbers. This form includes both a flank and frontal attack with the decisive blow in the latter. It provides for surprise, as the enemy must look to his two fronts. It is suitable in situations where the attacker has no great numerical superiority.

The World War has shattered the theory of "inviolability of the front." The front has frequently been broken. By drawing the enemy to a threatened flank the penetration of his front may be an easier task than that of his flank.

(c) The third mode of action is dictated when the two opponents are of about equal strength, and also if the terrain on the front or flank offers no special advantages. In this case, by attacking the hostile front, or front and flank, the attacker expects to force the enemy to utilize his entire force, to wear him down and to make him disclose his weaknesses. Following this the forces reserved for the purpose are launched in the decisive blow against either the hostile front or a hostile flank, depending upon the developments of the attack. This mode of action is especially applicable to situations where, aside from the fact that the opponents are numerically about equal, the defendant has only one flank exposed and there is little chance for a surprise produced by initial deployment. In this form of attack the commander waits for and grasps tactical opportunities. In the other forms, the commander bases his attack on a well conceived plan and the mechanical execution thereof by his troops.

Cover or Concealment

Cover or concealment for advancing infantry has been touched upon in the preceding pages.

Psychology

Surprise has already been discussed. Morale has recognized effects on the form of the attack. These effects are equally applicable to the defender and to the assailant, yet in somewhat different ways. There is no need to discuss this factor from the general viewpoint, but only in connec-

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tion with the form of the attack. A defender of low morale is more quickly affected by a blow from the flank than from the front. Yet this same defect may make easy a frontal attack consisting of continuous pressure produced by deep formations. So also, troops of low morale are quickly and seriously affected even by a threat against their line of retreat.

Superior Forces and Determination

The utilization of superior forces and superior determination for decisive results requires a predetermined plan and persistent adherence thereto. There can be no question that the adoption of a definite plan of attack and adherence to it with bulldog tenacity is a factor that outweighs all other considerations. Such a procedure gives to the attacker his natural advantage, which is, that he leads; the defender is subordinated and can only play the attacker's game. While the foregoing is true in all situations, it is especially so if the attacker is to derive the full benefit of his numerical superiority. The mode of action of the attacker when he retains in hand forces that will permit him later to strike either the enemy's flank or some part of his front, depending upon developments, will be adopted more often by the weak and nesitating than by the forceful commander. Yet this very mode of action in suited only to a commander of forceful character, who enjoys and even looks for opportunities requiring rapid decision and the assumption of responsibilities.

In any case, there must be a predetermined plan complete in all details except possibly the selection of the point for the decisive blow. However, when the assailant is greatly superior, the plan should generally be complete in all details from the initiation of the attack. The plan must be simple, and the simpler the better. By bearing in mind the forms of attack that have been indicated, the commander should be able to adopt a simple and easily understood mode of action.

Conclusions

(1) The vital tactical necessity of the present day attack is suitable provision for both fire action and shock ac-

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tion, and their proper combination. This can be secured only by a combination of linear tactics and tactics in depth.

(2) In every attack there should be a *local concentration of superior strength* which should be used to strike the decisive blow. The method and direction of employment of this concentration should form the basis of the plan of the attack.

(3) When the method and direction of employment of this local superiority can be determined in the initial stages, three forms of attack are available for selection:

(a) Frontal attack alone. The decisive blow is to be launched against a special part of the hostile front. This form of attack presupposes that the hostile flanks are protected.

(b) Combined frontal and flank attack (enveloping attack). The decisive blow is to be launched against one of the hostile flanks.

(c) Combined frontal and flank attack. The decisive blow is to be launched against a special part of the hostile front.

(4) Where the method and direction of employment of the local superiority must await the developments of the attack, this force is held as a reserve and, at the proper time, is launched either against a hostile flank or front, or between the two.

(5) It would be an error to adopt for *general application* any one of the foregoing forms of attack. The conditions involved in each situation must be carefully weighed and the proper solution adopted.

(6) The primary necessity, irrespective of form, is the adoption of a definite and simple plan and persistent adherence thereto.

Recognized Forms of Attack

With the foregoing in mind the discussion of the various recognized tactical forms of attack, i. e., frontal attack—envelopment—penetration—and turning movements, will now be taken up.

Frontal Attack

This form should not be confused with penetration, which will be discussed later, nor with the tactical frontal attack which all units must carry out as a part of a large force. The term here refers to a uniform attack on the

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whole of the hostile front. No decisive results can be expected from this plan of attack. The enemy's full strength is encountered simultaneously and in the position that he has selected and probably prepared. He can utilize all of the advantages of the defense. At best the attacker can only drive the enemy back in the direction of his line of communications. This is the least desirable of all plans of attack.

ENVELOPMENTS

Envelopments may be made against one hostile flank or, in the double envelopment, against both. These two methods will be considered in the order given.

In the single envelopment the tactics consists of attacking the enemy in front and on one flank at the same time. In theory, the frontal attack is secondary and has as its mission to hold the enemy in front, while the enveloping attack (the main attack) crushes him by striking him in flank.

The advantages of this form of attack are:

Assuming superiority on the side of the attacker, it permits the simultaneous employment of greater numbers, resulting in greater fire power.

It can take advantage of the surprise element, especially if envelopment is practicable on both hostile flanks.

It threatens the enemy's line of retreat, and perhaps even his line of communications.

If successful, it will throw the enemy into confusion, make his withdrawal difficult, and may result in his total destruction.

It avoids striking the main blow against a position that the enemy has selected and may have prepared.

It permits a concentration of fire power on the salient, where a local success may affect the whole fight.

It affords more lateral room for movement of troops, and probably more cover for infantry.

The attacker's efforts are employed in a convergent blow, whereas the defender's must be on divergent lines.

Part of the defender's lines may be enfiladed.

The disadvantages of this form are:

Realizing the probability of envelopment, the defender will hold his front (artificially strengthened) with smaller forces than the assailant employs in his frontal attack. The defender can thereby secure strong reserves to meet the envelopment.

By skilful maneuver, the defender's reserve can be launched against the flank of the enveloping attack. This is especially practicable if envelopment is only probable or possible against one flank.

If the attacker, in extending to make the envelopment, disperses too much, the defender may defeat him in detail.

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If the attacker, in his desire to secure strong forces for the enveloping wing, weakens his frontal attack too much, the defender can take advantage of this and defeat the frontal attack.

There is danger that the frontal attack may act so prematurely that it may be defeated before the enveloping wing can get into the fight.

If the defender is not too weak, he may gain advantages by enveloping the attacker's exposed flank, that is, the flank opposite the envelopment.

The attacker, by throwing the weight of his forces against the hostile flank, may unduly expose his own line of retreat or line of communications.

The initiation of an envelopment in the early stages of the attack presupposes accurate information as to location of hostile flanks, and this is not always available.

With the present tendency to organize the defense in great depth, the results expected from a concentration and convergency of fire on the salient will not be so pronounced.

All of the foregoing advantages and disadvantages will not appear in the same situation. However, they should be searched for and due weight given to their respective values. While a balancing of the above considerations shows the envelopment to be a strong form of attack, still the dangers inherent therein must be realized and kept in mind.

Forms of Envelopment and Factors Influencing Selection Thereof

An envelopment may be based on any of the following forms:

(a) The enveloping and holding attacks are made simultaneously in a co-ordinated and concerted effort. The strength of the attack is placed in the enveloping wing in the initial disposition. See diagram 8 (a). In this form the forces designated to make the two attacks (holding and enveloping) are deployed on their respective fronts at some distance from the enemy, and at a definite time announced by the superior commander they launch their attacks simultaneously.

The following factors influence the adoption of the above forms:

(1) The hostile position, especially its flank, should be rather definitely known and there should be little likelihood of any radical change therein

(2) That the situation does not favor surprise in the attack, as for example, when it is evident that only one of the hostile flanks can be enveloped, or that the enemy will early learn the direction of the attack.

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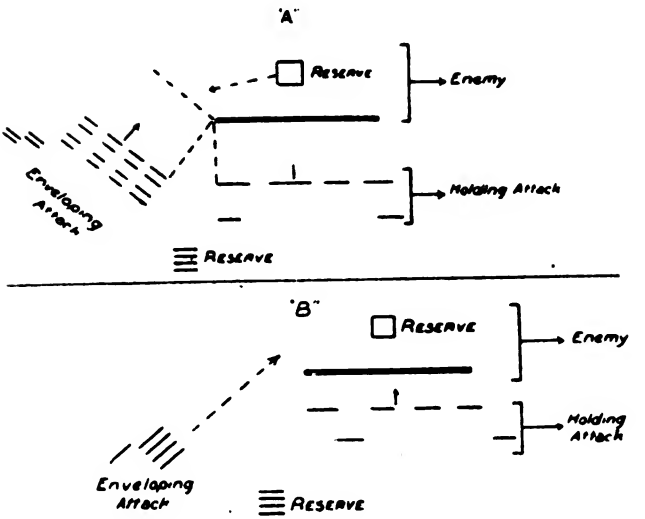
DIAGRAM No. 8



(3) When the attacker's numerical superiority is such that he fears no hostile counter-blow on his exposed flank.

(4) This plan involves considerable time in preparation, which, if the situation permits, has the advantage of insuring clear understandings and close teamplay.

(5) Cover should be available behind which the two attacks may be formed.

(6) Aside from the advantages inherent in a concerted blow, the enemy may be deceived as to which of the attacks will turn out to be the main one.

(b) The enveloping and holding attacks are not made simultaneously. The enemy is engaged and developed by the holding attack, and in the meantime the forces designated to make the enveloping attack *are assembled* under cover on the predetermined flank. Later, their attack is launched when ordered by the superior commander. (See diagram 8 (b).)

The following factors influence the adoption of this form:

(1) Although the general location of the hostile force may be known, it will frequently be necessary to engage the enemy before sufficient information can be secured for an intelligent launching of the enveloping attack. It may be necessary to drive in the hostile covering forces before sufficient information can be secured.

(2) Where the enemy has both flanks exposed, this form of envelopment may come as a surprise.

(3) While the surprise element is always desirable, it is especially so when the opponents are nearly equal in strength.

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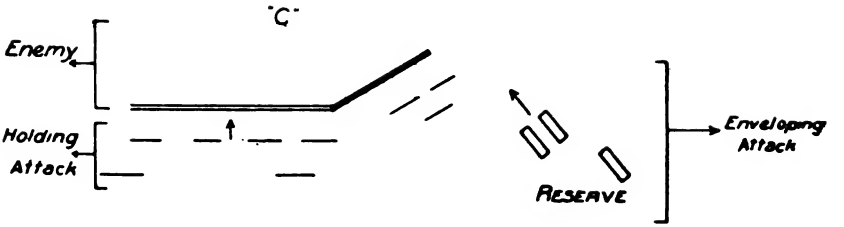

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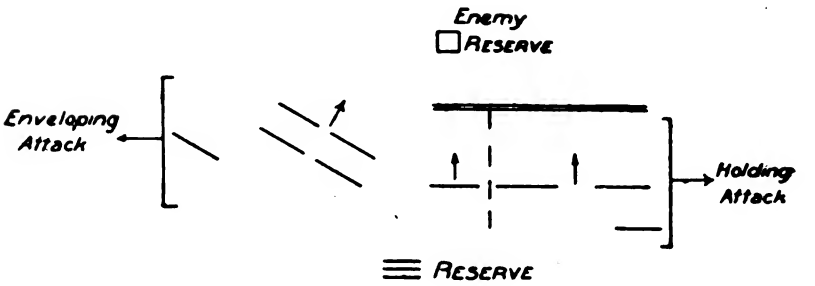

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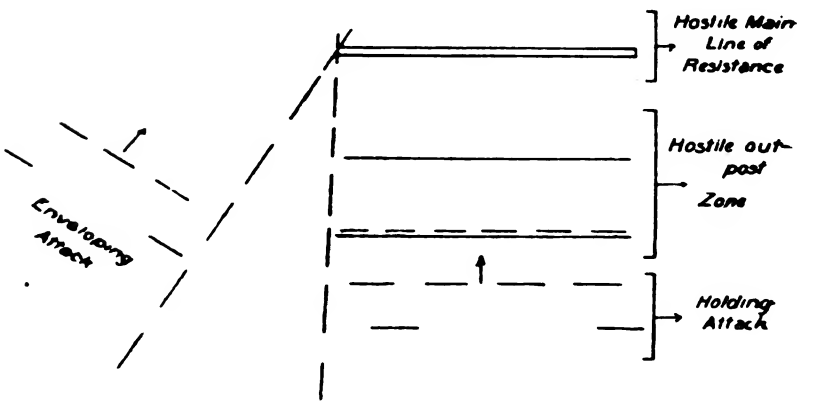

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(4) This form leads to separate attacks, and there is the danger of the holding attack wearing itself out before the enveloping wing can come into play. On the other hand, the strength of the holding attack may force the enemy to utilize most of his force on this front, thereby weakening his resistance on the flank.

(5) This form favors the concentration of artillery fire, first to assist the holding attack and second to support the envelopment. This also applies in a lesser degree to the enemy.

The above form may be modified by omitting *the assembly*. The enveloping force is then marched in a given direction, and attacks at a designated time or in the discretion of the commander of the enveloping force. This modification is advantageous when cover or concealment is available for the advance of the enveloping wing, and time is not available for a thorough development of the hostile dispositions. It is based on the enveloping force reaching a proper position from which to launch its attack during the time that the holding attack is developing the enemy.

(c) Diagram 8 (c) presents another illustration. Here the enveloping wing is supported by the divisional reserve, which is utilized for a further extension, or to guard the exposed flank. Such a disposition is favorable when the attacker is numerically superior, and also with small forces. In the latter case, the duration of the fight is generally so short that the employment of the reserve has to be predetermined and directed in the initial stages.

(d) Diagram 8 (d) represents a situation that sometimes arises. The front of the enemy is too extensive for the holding attack to engage the whole of it, or, after the attack starts, the enemy so extends his front that a part of the enveloping wing is called upon to act in conjunction with the holding attack. In such a situation, the enveloping wing would be ordered to attack and envelop a part of the hostile front.

The Holding Attack

The holding attack plays an important role. The action of the holding attack must not be confused with and does not correspond to that of delaying actions or demonstrations. It is an attack made with the two-fold object of holding

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the enemy to the position and forcing him to use the bulk of his troops in opposing the holding attack. Once these objects have been accomplished, then the mission of the holding attack is to contain the enemy in such manner that he does not dare to withdraw troops to meet the enveloping attack. Therefore, the holding attack must attack the enemy. No mere threat or demonstration will answer. In order to impress commanders with the foregoing, the Austrians designate the enveloping form of attack as "an attack on two fronts."

The main and delicate problem for the commander of the holding attack to solve is how far to push his attack prior to the time that the enveloping wing will strike the enemy. This problem is especially difficult when the two attacks are not launched simultaneously.

The enemy should be kept in ignorance as long as possible as to which one of the two attacks is the stronger and is to deliver the main blow. The difference in strength between the two attacks should not be evident by the appearance of the front lines. This difference is gained by decreasing the depth (fewer reserves) in the holding attack. The production of a relative greater volume of infantry and artillery fire in the early stages of the advance of the holding attack tends to deceive the enemy.

The Enveloping or Main Attack

The enveloping attack should be so directed as to strike the enemy in flank. The present tendency of organizing the defensive in depth makes this requirement difficult of accomplishment. Since the main part of the enveloping attack should strike in the direction of the probable location of the hostile reserves, it will be necessary either to have the holding attack drive in the hostile advance troops before launching the enveloping attack, or to leave a gap between the two attacks. (See diagram 8 (e).) If the interior flank of the enveloping attack is directed against the flank of the hostile outpost zone, the two attacks will converge in front of the hostile main line of defense. The dangers of such a situation are apparent.

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In meeting engagements and in situations in which the enemy accepts battle without time to prepare a position, there will be much less depth in his defense. In such cases, the direction for the enveloping attack can usually be determined in the initial stages and no large gap will be necessary between the two attacks. However, when the enemy has had time to organize his defense, the holding attack in most cases will have to drive in his advance troops before the enveloping attack can be launched in a correct direction.

The danger of a large gap between the two attacks is the opportunity given the enemy to defeat each attack in detail. Unless the enemy's morale is low or other conditions warrant a dispersion of the attacking forces, the distance between the interior flanks of the two attacks should seldom be greater than that of the two attacks from the hostile main defensive line.

Care is necessary in designating the direction lines for the two attacks. In addition to a definite frontage, each attack should be given a distinct boundary line for its interior flank. These direction lines should converge in rear of the hostile line and never in front of it.

Two main considerations influence the selection of the hostile flank to envelop when both are exposed. These considerations are generally referred to as tactical and strategical.

The tactical considerations are by far the more important and should be given more weight. The following are the main tactical elements to be considered:

(a) Cover for the infantry. This is the primary consideration and relates to cover which permits the infantry to approach within effective rifle range without serious losses. If the cover is such as to facilitate surprise, its value is greatly increased.

(b) Configuration of the hostile line. The nature of the terrain may force the enemy so to advance one flank in relation to the other as to facilitate an enfilading movement.

(c) The flank selected should permit the attacker to concentrate against it the fire of the mass of his artillery.

(d) Sufficient space should be available for the deployment of the enveloping attack.

The following are the strategical elements to be considered:

(a) Hostile line of retreat and line of communications. A threat to cut or destroy either will have great influence on the enemy's action.

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(b) The attacker's line of retreat and line of communication should not be unduly exposed.

(c) The location of hostile and our own supporting troops and the routes which they may use in approaching the battlefield.

There are several methods of forming the enveloping force, depending upon the situation. In most cases, the advance guard will have to engage the enemy (at least the hostile covering forces) before a complete attack plan can be formulated. During the action of the advance guard, the main body should be developed by directing fractions thereof to march to or on designated points. These fractions may be placed in "positions of readiness" preparatory to the attack, or they may be given march directions which will convert them into holding and enveloping attacks. Generally, the advance guard, reënforced, becomes the holding attack. It is simpler, less difficult and generally more effective to start the enveloping force marching directly on the hostile flank from its position in the route column of the main body. A large gap created between the two attacks by this procedure has little danger if prompt communication is available and the two forces are within supporting distances of each other. If retained reserves are employed for the envelopment, time is lost and flank marches have to be made.

As has already been said, an early development of the route column will facilitate envelopment, especially in meeting engagements.

The formation of the enveloping wing should be such as to provide protection for its exposed flank. This is accomplished not only by patrols but also by echeloning a reserve on that flank. Where cavalry is available, it can be used advantageously for this purpose.

Continuous reconnaissance to front and flank is essential to the success of the enveloping force. Special effort should be made early to learn of any extension of the enemy's original flank, to pick up the existing flank, and to learn of any hostile troops echeloned to the rear.

Employment of the Artillery

Aside from its general functions of neutralizing the hostile artillery and of assisting in securing the superiority

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of fire desired for the infantry advance, there are three important artillery missions in the enveloping attack.

> First, the artillery should assist in creating in the enemy's mind the impression that the holding attack is powerful and requires strong opposition. To accomplish this it should push forward and get into action as early as practicable.
>
> Second, the greater part of the artillery should be prepared to concentrate its fire in support of the enveloping attack without delay.
>
> Third, the position selected for the artillery, while permitting it to carry out the above missions, should also make the greater part of the artillery fire available to support the holding attack in case of a serious hostile counter-blow on that front.

The long range and fire concentration capabilities of the artillery should be so employed as to meet the above requirements. At the same time, definite artillery organizations should be designated to support each attack.

While the cavalry should be present on both flanks for reconnoitering and security purposes, the bulk of it should be in readiness to clinch the victory. This mission can best be accomplished by operating on a flank. The nature of the terrain, obstacles, lines of retreat, etc., have to be considered in this connection.

In the initial deployment a reserve should always be held under the control of the superior commander. Its size varies with the situation. It may be held for a decisive blow against any part of the hostile line or, as previously indicated, it may be directed to march on the exterior flank of the enveloping attack. In small detachments the latter is the rule.

The co-ordination of the two attacks (holding and enveloping) should be the personal concern of the supreme commander. Several methods of securing it are available. The holding attack may be directed to base its action on the enveloping attack after passing a designated line; the holding attack may be directed not to pass a designated line until a specified hour, or the hour when both attacks are to pass designated lines may be given. The degree of co-ordination in the forms of attack illustrated in diagrams 8 (a) and 8 (b) would be quite different.

The simultaneous assault of the two attacks is ideal and is advocated in theory. In practice such extreme co-ordination can seldom be expected. However, if good communication exists this ideal may be approached by close

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personal co-operation between the commanders. At least, the holding attack should be prepared to support the assault of the enveloping attack with increased fire. The supreme commander should keep in close touch with the situation and lend timely assistance by concentrating artillery fire on the vital part of the line. When the supreme commander utilizes his reserve for the final blow, timely notice to subordinate commanders should insure co-ordination all along the line, including artillery support.

The Double Envelopment

Double envelopments are practicable only for large forces such as armies and groups of armies. Smaller units cannot afford to disperse their strength in two envelopments and a holding attack. Such a disposition opens the way for hostile penetration. In minor and colonial warfare, the psychological effect produced by a double envelopment has advantages, especially when dealing with an enemy of poor morale.

Penetration

Penetration is based on piercing the hostile front. This form of attack, on account of the existence of impassable flanks, predominated on the western front in the last years of the World War. It consists in driving salients into the hostile front and then enveloping one or both of the flanks.

The principle of main and holding attacks applies. A local concentration of superior numbers is made for the decisive blow, while the rest of the front is held by weaker forces that engage and hold the enemy.

This form of attack is more applicable to larger forces such as armies and corps than to divisions and smaller commands. The danger in this form comes from the opportunity offered the enemy to concentrate by convergency most of his fire power against the penetrating attack. In fact, the enemy may be able to envelop the flanks of the penetration. This is particularly true in the case of smaller forces where the front involved is well within the range of modern artillery. In larger forces this defect is not so evident.

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The nature of the terrain involved in the operation may so facilitate the convergency of the hostile efforts as to make the attacker's success very doubtful.

It is essential that the assailant be able to make his local concentration for his main attack as a surprise. If this is not accomplished, the enemy may counter-attack against the weak fronts. This surprise may be facilitated by a threat to envelop an exposed flank, which attracts the hostile reserves. (See Grant's battle of Chattanooga.)

The superiority of the assailant in his decisive attack must be substantial to secure decisive results. He should have sufficient reserves at hand after penetration to meet a hostile counter-attack and to press the attack to one or both flanks. (Cambrai-German offensive of March 21.)

The penetration may take place on one part of the front or on several parts at the same time. The nature of the terrain, hostile dispositions and available strength will influence this question. The plan of penetration should contemplate one of two ultimate modes of action:

(a) The penetration is to be carried through on a front broad enough to permit a "break through," followed by taking the enemy in reverse.

(b) A penetration should be made, sufficient to permit an envelopment of the original hostile lines adjacent to the salient.

The former action is applicable to armies and the latter to corps and divisions.*

In a penetration, the holding attacks have the same mission and employ the same tactics as previously discussed in the envelopment. The tactics and deployment of the main attack are based on two missions, which are, *to make the penetration, and later, to roll up one or both of the hostile flanks.* Two closely co-ordinated but distinct units are generally required, one for each task.

The *penetration* is generally secured only when the deployment of the attacking forces insures a constant and fresh pressure for a long period, and this means great depth

*See diagram No. 9.

A—1st Army's attack Sept. 26, 1918, Meuse-Argonne, double penetration followed by a single penetration.

1st Army's attack Nov. 1, 1918, Meuse-Argonne, single penetration followed by a "break through."

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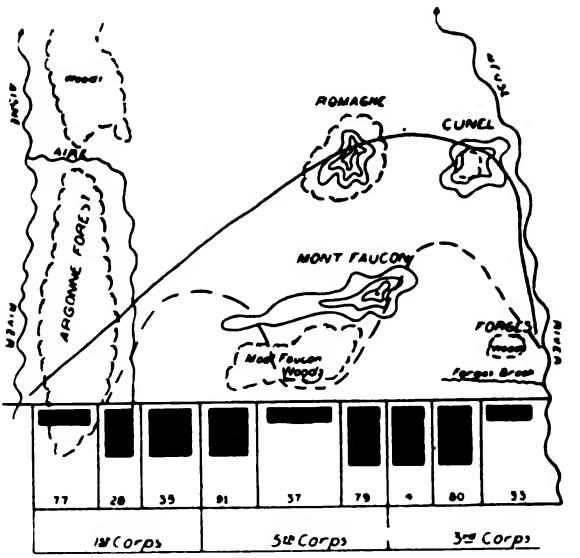
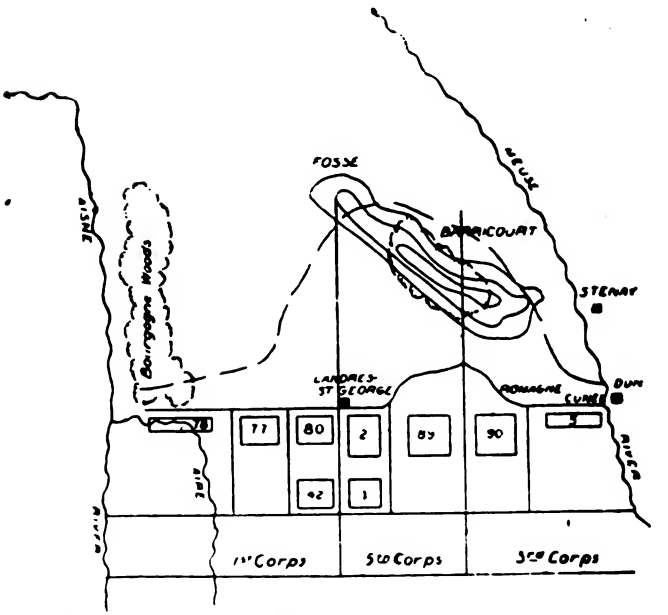
DIAGRAM No. 9 (a)



——— Army objective showing final single penetration.
– – – – Showing the double penetration ordered to reduce the center before final penetration.
NOTICE:—Concentration opposite the two penetrations.

DIAGRAM No. 9 (b)



Army objective showing single penetration.

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of deployment. In an average case eight to ten rifles per yard are required in penetrations. By such an arrangement fresh troops can be pushed forward to relieve the worn out front line, and no respite is allowed the enemy.

Continuity of command and avoidance of mixing units are of prime importance in determining the form of deployment. These are secured by deploying platoons, companies, battalions, regiments and brigades in depth and, as the developments of the attack require it, causing the rear elements to pass successively into the front line.

The tactics of "passage of lines" comes into play. This consists of a rear unit relieving a front line unit by passing through it. It must be distinctly understood that the two units are not amalgamated. The old front line unit is relieved, withdraws completely into a reserve position for rest and reorganization and may later, as its turn arrives, again be placed in the front line, and so on. Continuity of command is desirable to insure a proper "passage of lines."

The passage of lines may take place on the orders of local commanders, depending upon the situation, or a definite time therefor may be previously announced by the higher commander. A careful study of the terrain and the enemy's dispositions in comparison with the depth and probable duration of the attack should indicate the number of fresh impulses that may be required, and the probable locality in which they may be needed. The advance should not be unduly delayed to permit a passage of lines. Troops should be trained in this maneuver. However, the place selected therefor should facilitate the passage, that is, it should be covered or concealed ground. If a rolling barrage is to continue throughout the attack, the passage of lines and the advance of the greater part of the light artillery can be synchronized to advantage.

In addition to reserves to be utilized in the "passage of lines," the force employed in the penetrating attack requires reserves to protect its own flanks, to cover gaps in the line and to meet local hostile counter-attacks. It is evident that penetration will result for the time being in exposed flanks, especially for the exterior units of the penetrating attack. (See diagram No. 9.) In addition, the

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front of attack will be extended in proportion to the depth of the penetration. The depth of the original deployment should provide for such contingencies.

The units making the penetrating attack should drive through to a depth equal to the limit of their full power. Unless this is done the full benefit of the surprise will be lost. Only in an indecisive limited attack should intermediate objectives or halting places for the infantry be announced. The basis of the decisive penetrating attack is a continuous infantry advance. The supporting artillery and machine guns must be so organized and their employment so arranged that they will furnish the infantry with continuous support during the continuous advance. The infantry should seldom be halted to permit a continuation of the rolling barrage beyond the initial range. Accompanying guns and infantry batteries should be employed to meet the situation beyond the limit of the initial artillery range. (See discussion of objectives, barrage, etc., *ante*.)

In penetration, local strong points will be encountered which will greatly delay the advance unless the attacker's initial plans make provisions to meet such obstacles. To troops inexperienced in handling such defenses, these strong points will act as magnets unless the higher commander's plans provide otherwise. These plans should insure an opposite effect, that is, a definite organization, coupled with an artillery fire concentration, should be employed to cover the hostile strong points while the main part of the attack pushes beyond without halting. If the strong point does not fall by threat of the troops on its flank, then a small force should be designated to take it in reverse.

The principle enunciated in the above paragraph is the basis for conducting all penetrating attacks. Generally, the weakest part of the hostile line is selected for the penetration, and within this front the local reserves are pushed through the locally free or weak spaces.

Diagrams Nos. 6 (a), 6 (b), 6 (c), 6 (d), and 6 (e) illustrate the deployments suitable for a division in a penetrating attack, and give the approximate frontage for each class of deployment. The front of deployment, it will be noted, varies from 1200 to 2300 yards, and the depth (given

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in rifles per yard) varies from 11.3 to 6 in the illustrations given. Most of the main factors that influence the foregoing deployment have been discussed. The deployments shown in diagrams 6 (a) and (b) correspond to situations in which the division will not be required to carry on an offensive for a prolonged period, and when the depth of the penetration is not expected to be very great. The deployments shown in diagrams 6 (d) and (e) provide for a prolonged offensive with a deep drive. They permit one brigade to rest in a less exposed area, and provide for an exchange of brigades. The latter gives the division commander a complete unit for any special work. The deployment shown in diagram 6 (c) gives considerable depth for prolonged fighting and has the advantage of continuity of command; 6 (d) and (e) will generally permit the division to fight for a longer period, but require complete reliefs and disrupt continuity of command.

The rolling up of the hostile flanks is generally carried out by reserve divisions or, in a local attack, by the reserves of the exterior divisions that make the penetrating attack. This mission may be accomplished by attacking the newly created hostile flanks, or the old hostile front adjacent to the new flank, or by a combination of these two methods. In large forces attacks against both hostile flanks may be practicable, whereas in smaller forces, like divisions and corps, sufficient reserves will seldom be available for so large an operation. As the probable hostile reaction to a penetrating attack will be a counter-attack against the newly formed salient, it is desirable to launch the blow against the hostile flank and old front at such a time as will forestall the hostile counter-blow.

However, opportunities should be grasped anywhere on the whole line. The defender may have to weaken a part of his front to check the penetration, thus opening the way for a successful blow by the troops that are making the holding attack.

Turning Movements

Turning movements involve a separation of the command into two forces which operate beyond supporting distance of each other. One force, the weaker, is designated to

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engage and hold the enemy, while the other, the stronger, makes a detour to strike him in flank. This form of attack is seldom applicable to a force that is relatively so small that, when divided, both parts will not have sufficient strength to maintain themselves in an independent action. This form applies to commands larger than divisions. In small forces, the division of the force makes for weakness, resulting in piecemeal attacks.

A turning movement permits the attacker to select the battlefield. He avoids the prepared hostile position, and by the detour, forces the enemy to accept battle on ground more favorable to the attacker.

Surprise is essential to success, since the enemy should be detained on his original front and be kept in ignorance of the march to the flank of the main attack.

Two great dangers are associated with this form, especially for relatively small forces. The enemy, becoming aware of the flank movement, may attack the weak holding attack in force, and later turn the flank of the main attack. While the flank movement of the attacker threatens the hostile line of retreat, the attacker's own line of retreat and line of communications may be exposed. If the attacker can utilize other routes to his base of supply, this objection is of course removed.

The dispersion and other dangers involved in this form of attack make its adoption inadvisable by a relatively small force. However, one should not confuse a turning maneuver with the attack indicated above. In a turning maneuver, the bulk of the attacker's force marches around the enemy's original front, leaving only a screen in front of it to cover the movement. Such a maneuver is sometimes chosen when the enemy holds a position extremely difficult to attack and also when there is little danger that the enemy will advance to the attack. A river crossing situation will sometimes be solved in this manner.

Offensive Situations

The following are the usual situations which need consideration from an offensive viewpoint: (a) Surprise attacks; (b) meeting engagements; (c) an attack against an

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enemy deployed for defense; (d) an attack against a prepared position; (e) an attack against a defensive zone; and (f) forcing a river crossing or mountain defile.

Consideration of these will be limited to a discussion of the general application to such situations of the principles herein enunciated.

Surprise Attacks

Situations that involve surprise attacks relate to small forces where ambuscades are possible. They result from a lack of or a carelessness in reconnaissance and observation. Surprises are inexcusable, especially with trained troops.

The surprise effect may be produced whenever a force is caught in route column or any other formation unsuitable for combat. The surprise is secured by fire or shock action or a combination of the two. Generally, the force surprised, caught by a rapid fire delivered at short range, greatly overestimates the strength and morale of the enemy. The moral effect, at least in the beginning, is greater than the material.

While the ambuscading force should make full use of fire action, the force surprised should resort to the bayonet as early as possible.

> "No matter how unexpectedly the enemy may appear, you should never forget that he may be annihilated either with the bayonet or with fire. The choice between the two is not a difficult one, and the formation is of secondary importance. When the enemy is at close quarters, use the bayonet; if he is still at a distance, fire on him, and then use the bayonet." (Dragomirov.)

Meeting Engagements

Some authors refer to the situation that results in meeting engagements as the rencontre. It is a collision of two hostile forces not deployed for combat. The leading or covering elements of the opposing forces may be surprised, but there can be little excuse for the extension of the surprise effect to the main body. However, a prompt decision and the promulgation thereof by the commander is essential to avoid such a predicament. Efficient aerial and ground reconnaissance will prevent surprise and gain for the com-

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mander the time and information necessary for the preparation and launching of a co-ordinated attack.

The decision to attack, to defend, or to avoid the enemy in such a situation is influenced by the mission as well as by relative strength, terrain and other features. However, only the offensive is now being considered. In the offensive there are four recognized general modes of action:

(a) Successive attacks.

In this form, the leading elements engage the enemy, and, as fast as the rear elements can be brought forward, they are launched into the attack by an extension of the front. Such a procedure results in piecemeal efforts and is warranted only by great numerical superiority, or when some important terrain feature must be secured and no other mode of action is permissible, or time is vital, or the advantages of the situation are all with the attacker. Example: The clearing of an exit of a defile or a critical phase of a battle.

(b) The leading elements attack, while the main body is developed and then launched in a co-ordinated attack in extension of the front of the leading elements.

In this form, the leading elements (advance guard) have the mission of securing terrain that will cover the development of the main body, and of forcing the enemy to disclose his strength and intentions. The advance guard is not only the screen under cover of which the main attack is launched, but as a holding attack, it should pin the enemy to ground in its front. While this mode of action does not result in a co-ordinated attack of the whole command, it has the great advantage of gaining time and information for the decisive employment of the main body, and may be advisable if one has his opponent at a disadvantage as regards deployment.

(c) The leading elements hold defensively terrain which will cover the deployment and launching of the main body in a co-ordinated attack in extension of the front of the leading elements. The result of this mode of action may be that the enemy will attack the leading elements in force and thereby give our own main body an opportunity to strike a surprise blow. Otherwise, if the enemy does not

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launch a serious attack at once, the leading elements and the main body may be employed in a co-ordinated and concerted attack. This mode of action is advisable if the enemy is known to have the lead in deployment.

(d) Decision may be made to accept battle on terrain in rear of leading elements, that is, near the main body. In this form, the leading elements delay the enemy sufficiently to permit the main body to deploy and then fall back. In their retirement, the leading elements should clear the front of the main body, and in so doing may lead the enemy to expose his flank to attack by the main body. In this mode of action, the commander temporarily gives up the initiative, hoping to regain it later. The enemy is given sufficient time and space to develop fully his entire command and to prepare for a concerted effort. The leading elements may be overwhelmed and driven back in disaster on the main body. This mode of action should not be accepted unless known numerical weakness or some special advantage of the terrain positively demands it.

The situations given in (a) and (d) are desirable only when special circumstances force their adoption. They generally result in piecemeal attacks and the commander loses the initiative.

The choice between (b) and (c) depends upon the conditions of each situation. The following are influencing factors:

Success is more certain to the side that adopts earlier a definite plan of action, deploys its main body in accordance therewith and adheres throughout the action to its original plan. The above results in gaining the initiative, and in a fight in accordance with one's own plan instead of following the enemy's lead. The enemy is forestalled. This requires early information of the enemy and of the terrain in the neighborhood, and also time and cover for the development and deployment of the main body.

Relative strength and morale should be considered. It is evident that the peculiarities of each situation must decide whether the advantages mentioned above can be best secured by the (b) or the (c) mode of action.

Practically all meeting engagement situations require the following steps in sequence:

Early decision as to a general plan and the mission of the advance guard;

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Early entrance into action of all available artillery and machine guns;

Immediate development of the main body and its advance to a suitable position for launching an attack;

And later, as the situation clears up, attack orders that will insure co-ordination and concerted effort by the whole command.

The action of the leading troops, that is, the advance guard, greatly influences the form of attack. It is therefore necessary that the advance guard commander receive early definite instructions as to the plan of the superior commander. The advance guard in either (b) or (c) mode of action should be the pivot about which the main body launches its attack, and should also secure and cover the artillery and machine gun positions and the observation points. In any case, the advance guard should at least secure terrain and space for the above purposes, and if necessary should use every man to accomplish it.

Artillery and machine gun fire is required early, not only to clear up the situation, to interfere with the hostile advance and to force the enemy "to show his hand," but also to support the advance guard and to cover the advance of the main body. With the above objects in view, these units should be advanced rapidly to suitable positions covered by the advance guard.

The side that first deploys its main attack secures the initiative and the advantage of the ground, and has better chances of adhering to its original plans. With the above advantages, the enemy can be thrown onto the defensive, if not into confusion.

The form of the attack, straight to the front or to envelop a flank, is not so important as the selection of a definite direction for the main attack and one that will insure a concerted effort. A consideration of the nature of the terrain, the obstacles and the time factor involved should indicate whether the main attack should be launched straight to the front in extension of the leading units or against one of the hostile flanks. The envelopment is the more desirable if the situation warrants it.

An Attack Against an Enemy Deployed for Defense

In an attack against an enemy deployed for defense the enemy has surrendered the initiative. He hopes to take ad-

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vantage of the attacker's plan and its development to launch a decisive counter-blow. By assuming the defensive, the enemy economizes forces so as to strengthen his counter-attack.*

The enemy will probably have selected terrain suitable for defense and will have strengthened the same artificially as much as possible. In order to cover the organization of his defense and to develop the assailant's plan of attack, the defender will generally have covering forces (outpost) well in advance of his main line of defense.

The attacker should meet the conditions outlined above by a co-ordinated and concerted blow directed primarily at the weakest part of the hostile deployment. A piecemeal or impetuous attack is out of the question. The attacker can and should chose the time and direction of the attack, based on thorough reconnaissance of the hostile dispositions.

Unless some special feature of the main mission affects the time element, it need only be considered in relation to enemy's strengthening his position by artificial means. At the same time, the probable duration of the fight, in relation to the amount of daylight available, should be also considered. Many conditions enter into such a calculation. In an average case, it seems safe to assume that for a division at least three or four hours are necessary to complete the fight. This is figured from the time that the infantry attack has started on the whole front. (It is to be noted that development and deployment have already been made.)

The hostile covering forces (outposts) should be driven in, and aerial and ground reconnaissance should be pushed to locate the hostile front, flanks and main artillery positions. This information is required as a basis for a complete plan and for sound conclusions in selecting the decisive direction for the main attack. Generally the advance guard, supported by artillery pushed forward for this purpose, and the cavalry and air service should be able to carry out the above tasks.

In the meantime, much time may be saved by developing the main body and advancing it to a suitable position for

*Delaying actions, covering operations and a passive defensive are not here considered.

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future action. Frequently the nature of the terrain and a consideration of our own and the enemy's lines of retreat and lines of communications will indicate in the beginning a general direction for the main attack, and therefore the route of advance for the main body.

The artillery should be in position early, covered by the advance guard, to take advantage of the information gained, to prepare the way for the attack by a preliminary bombardment of the hostile batteries, and to interfere with the enemy's attempts to strengthen his position.

The plan of attack to be adopted, frontal or one of the various forms of envelopment, will, of course, be influenced by the special conditions of each situation. However, to counter-balance the advantage inherent in a position selected for defense, the plan of attack should be carefully arranged in all of its details. The enemy will, in the beginning at least, "command by fire." This advantage must be wrested from him by skillful employment of co-ordinated artillery, machine gun and infantry fire, which should be insured by proper initial deployments. Before the enemy can be driven from his position, the attacker's infantry, including that of the enveloping attack, must fight its way over a deep fire-swept zone. This can seldom be accomplished unless time is taken to insure proper deployments, assignment of targets and direction of advance, and close support by artillery and machine guns.

The foregoing requires that the main attack be given time to reach its deploying position and to arrange the details mentioned, and also, that close co-ordination between the holding and main attack be insured.

Whereas opportunities for surprise by maneuver may not often present themselves, surprise may be gained by selection of the front for the decisive attack and by the employment of the reserve.

A hostile counter-blow by a strong reserve should be expected and plans made accordingly. It would be a mistake to hold in reserve a large force to meet such a contingency. Such action would forfeit the initiative and frequently lead to a "drawn fight." The defender will have to use his reserve to meet the assailant's main attack, pro-

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vided this attack is made sufficiently strong and in such a direction as to strike a decisive blow. The enemy should be compelled to throw his reserves against the main attack, and not be permitted to use them in accordance with his own predetermined plan.

An Attack Against a Prepared Position

The conditions in an attack against a prepared position are similar to those indicated in the preceding discussion except as follows:

(a) The field works will increase the difficulties of the attacker in gaining fire superiority.

(b) The hostile dispositions will be in greater depth, and a more systematic employment of flanking fire by the defense will be practicable.

(c) The natural and artificial strength of the position will permit the defender to hold a more extended front. This will frequently place at least one flank on an impassable or difficult obstacle.

(d) The defender's ammunition supply will be easier.

(e) The defender's covering forces will be farther in advance of his main line of resistance and generally will be found intrenched.

The foregoing conditions indicate a necessity for a much more deliberately planned attack than when the enemy is encountered without the protection of field works. Careful and detailed aerial and ground reconnaissance to determine the hostile weak points can hardly be made until the enemy's covering forces have been driven in. This action may develop into serious fighting of some hours' duration before the hostile main position will be uncovered. Strong artillery support will often be required for this phase of the fight. Unless the time factor demands earlier action, the cover of darkness should be utilized to advance the attacker, after the hostile outpost has been disposed of, to a position close to the hostile main defensive line.

The various organizations designated to make the attack should be placed in "positions of readiness" opposite their respective objectives, and should be given sufficient time for detailed reconnaissance, designation of zones of action, etc., following which a co-ordinated attack on the whole *front of the attack* should be launched.

The depth of the hostile position will generally be so extensive that the infantry cannot carry the whole position

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by one assault, as might be possible when an enemy deployed for defense is encountered. The successive lines of trenches, strong points and machine gun nests in depth, will require locally separate and successive fire fights and assaults. The artillery and machine gun support should be arranged to meet such conditions.

The attacker's artillery should seek a position which will insure its fire reaching the entire depth of the hostile position. If the infantry cannot be advanced under cover of darkness or other favorable conditions to an assaulting position, the artillery and machine guns, by standing barrages and successive concentrations, should hold down the hostile fire to assist the infantry forward. When the infantry assault starts, the artillery and machine guns should accompany it with a barrage to at least the rear of the hostile position.

The special conditions of each situation will determine whether the hostile position may be more easily carried by a frontal or an enveloping attack, or even by a turning movement. The practicability of extending the defensive front and of resting the flanks on difficult terrain frequently forces a frontal attack (penetration) as the best solution.

The situations involving the "attack against a defensive zone" and "river crossings" will not be discussed here, as they are covered in detail in another place. However, the difference between the attacks just discussed and one against a defensive zone must be borne in mind. In the former there is only one position, while in the latter several successive positions in depth will be found. The principles given under "Penetration" apply to the attack against a defensive zone.

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(B-1) AN ATTACK IN A MEETING ENGAGEMENT

MAJOR H. J. BREES, Cavalry, Discussion and General Situation.
MAJOR P. D. GLASSFORD, Field Artillery, Artillery.
CAPTAIN W. C. SHORT, Infantry, Machine Guns.
CAPTAIN O. S. ALBRIGHT, Infantry, Signal Communications.

EDITOR'S NOTE:—The discussion of an Attack in a Meeting Engagement, or rencontre, opens with a general discussion of the tactical principles and decisions involved. This is followed by an illustration of their application to a concrete case. Four officers have collaborated in this study which contains many references to Field Service Regulations and to the General Discussion of the Offensive (see *ante*).

General Discussion

Certain general principles are applicable in all combat. They are:

(a) Fire superiority insures success.
(b) Unity of command is essential to success.
(c) The task assigned any unit must not involve a complicated maneuver.
(d) All the troops that are necessary to execute a definite task must be assigned to it from the beginning.
(e) Detachments during combat are justifiable only when the execution of the tasks assigned them contribute directly to success in the main battle or when they keep a force of the enemy larger than themselves out of the main battle.
(f) Too many troops must not be committed to the action in the early stages, no matter what be the nature of the deployment or the extent of the line held.
(g) The reserve must be used when needed.
(h) Flanks must be protected.
(i) Reconnaissance must be continuous.

The infantry is the principal and most important arm and decides the final issue of the combat. The work of the other arms must be subordinate to and co-ordinate with the work of the infantry.

The artillery is the close supporting arm of the infantry. The greater the difficulties of the infantry the more powerful must be the artillery support.

The cavalry, preceding contact by the opposing troops of the other arms, is engaged in reconnaissance of the enemy and of the terrain. After combat begins its activities should be directed to the support of the other arms, particularly towards insuring the success of the infantry as soon as that arm is fully committed to the action.

In any combat, whether offensive or defensive, the greatest possible use should be made of machine guns.

Engineer troops are used as part of the attacking line only in exceptional cases. When used as infantry they gen-

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erally form part of the reserve, or are used for flank protection.

On account of its long range, heavy field artillery may be profitably used in offensive combat in restricting the field of activity of the enemy's shorter range artillery. It will also be of value in firing upon supporting points in the hostile line, upon covered positions occupied by large bodies of the enemy, particularly his reserves, and, in general, against a position that has been deliberately taken up by the enemy.

In no combat can success be attained without fire superiority. This must be obtained in the early stages of the combat and maintained to the end. It will afford the best protection that can be given to troops that are advancing to the attack, and is also the best means of diminishing losses. The artillery and machine guns must co-operate with the infantry in obtaining and maintaining fire superiority.

A certain relation must be maintained between frontage and depth in an attack. All things considered, depth of formation is of more importance than over-extension of front. Sufficient depth makes available means to meet the contingencies of combat and the unforeseen developments in the situation as they arise. This insures sufficient driving power. A division should, in an attack, occupy a front of from 1¼ to 1½ miles. This rule is not invariable. Conditions may, and frequently do, arise under which it will be necessary to attack on a greater front, and when the dangers of such over-extension must be met by a proper use of reserves.

On the march, when there is a probability of contact with the enemy, the leader of each column should be well forward where he can personally direct the movements of his command.

In a meeting engagement, after contact with the enemy is established, the commander will have to make a decision and decide upon a plan of action, which will be based upon his mission, and the information of the enemy and the terrain. This decision will be communicated to the troops by means of orders. In a meeting engagement troops may be put in motion in the desired direction by verbal orders, which

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must, however, be followed as soon as possible by written orders. It may be possible, also, that subsequent orders will be only fragmentary or verbal, but where practicable, full and complete orders should be formulated and distributed to insure co-ordination of effort. All orders must be positive and must assign definite tasks to all units. In assigning combat tasks, brigades and divisions should be given certain well defined parts of the enemy's line to attack or defend. Trains should be grouped far enough to the rear so as not to interfere with the movements of the combat troops.

When an encounter with the enemy is probable, every available means should be taken beforehand to lessen the time that will be required to deploy for action. Single route columns of such length that the rear elements are out of supporting distance of those in the lead should be shortened by an extension of front, as far as security and the terrain will permit. This extension may be secured by breaking the single column into two or more parallel columns rather than by an extension of the fronts of such units.

Precautions must be taken in this development for action that each column is directed upon its probable objective, and that the different columns and parts of columns do not get out of supporting distance of each other. After the initial deployment the subsequent troop leading of the brigades and small units follows the principles laid down in the drill regulations of the different arms.

Surprise is never justifiable in warfare. If, however, troops are forced into action directly from a formation unsuitable for combat, or come unexpectedly under effective fire of the enemy before development and deployment, boldness and decision in action is usually the best line of conduct. If the enemy is still beyond close range, quick development of fire is important. In such case the artillery must be put into action at once to deliver a heavy fire upon the most threatening bodies of the enemy.

In the rencontre, where there is no surprise, success depends mainly upon efficient troop leading. Quick decision on the part of the leader is necessary, and is possible if he has thought out beforehand and keeps constantly in

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mind what he will do when the enemy is encountered. This applies to all leaders from the highest to the lowest. In the rencontre, the early use of the artillery delays the deployment of the hostile lines, or forces such deployment at long ranges, and thus gains valuable time for the leader to shape his plans. Any position held by the enemy will have its strong points and its weak points. The commander should, therefore, select in the enemy's position limited sections against which the decisive attack will be made, but the attention of the enemy must be held along his entire front to insure success.

The terms "frontal" and "enveloping" attacks have no significance so far as the ultimate relative positions of the contending forces are concerned. Unless the enemy blunders, or is decidedly inferior numerically, the attack finally becomes a frontal attack so far as the brigade and smaller units are concerned.

In selecting the flank against which to direct the main or enveloping attack the governing considerations are both tactical and strategical. Tactical considerations point to that flank of the enemy that is weakest in position or in troops, gives ease in approach, affords cover, and where the defeat of the enemy will prove most disastrous to him. Strategical considerations would direct the attack toward that flank of the enemy where, if successful, it will drive him from his line of retreat and cut him off from his nearest supporting troops or the possibility of reinforcement. Where tactical and strategical considerations conflict, tactical considerations must govern. The gaining of the decision in combat is of primary importance.

The governing idea of the holding attack is to make it energetic enough to deceive the enemy, in order that he may use as many of his troops as possible in resisting it, or even draw upon his reserves for such purpose. Early development of the maximum amount of rifle and artillery fire is essential and for that reason the deployment is along extended lines. The holding force may be called upon to push the attack to the point of assault, and in the end will join in the attack on the enemy when the decisive attack has succeeded.

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If the hostile lines are held by good infantry, properly led and supported by good artillery, fire action will not bring about a decision. For this purpose the assault will be necessary. Whether the assault is made by order of subordinate commanders, or whether the impulse for it emanates from the firing line, there is danger that other parts of the line will have neither the power nor the inclination to move forward in support. Assaults by small bodies of troops can succeed only where conditions of terrain are such as to afford them cover and protect their flanks. Otherwise, if they are not supported by other parts of the line, the result may be the annihilation of the assaulting force. To secure concerted action, therefore, it is essential that the higher commander indicate or prescribe the time for the attack. As soon as the decision is made, all the fire that can be brought to bear by artillery, machine guns, fire of position, auxiliary weapons, and from other parts of the firing line will be directed upon that part of the enemy's lines selected for assault.

It has been shown in the General Discussion of the Offensive (*ante*) that the following is the sequence of steps that generally occur in an attack in the meeting engagement:

(a) Reconnaissance and covering detachments.
(b) Development.
(c) Approach march.
(d) Deployment.
(e) Advance to first firing positions, artillery preparation.
(f) The fire attack (fire and movement) which seeks by superiority of fire to place the attacker within assaulting distance of the enemy.
(g) The assault.
(h) If successful, the pursuit.

As has been previously pointed out the objects and advantages of development are to gain time in deployment and advantages in attack directions, to avoid losses from artillery fire and aerial bombing, and to make aerial observation difficult. The gaining of time is a question of road space and distance. If a long column is broken up into two shorter columns marching parallel to each other, the latter can deploy in half the time required for the long column. The fact that early development permits rapid deployment often gives the commander such initiative that he can force the battle to take the direction that is to his advantage. The

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small columns that result from development facilitate the use of natural cover and concealment, and thereby make it more difficult for the enemy to carry on artillery fire, aerial bombing and observation. One disadvantage is that most of the troops are forced to march across country for a long time. While this affords cover and concealment, the rate of advance is slowed down and there is greater fatigue. During the development advantage should be taken of any opportunities to clear the roads, so as to bring the artillery well forward.

It should be remembered that there is one distinct line of demarkation between the development and the approach march. For the development each column need only be assigned an objective or direction point on which to march, whereas definite fronts, zones of action and missions should be assigned the various large units prior to their taking up the approach march. This is especially desirable in a meeting engagement, as subsequent situations develop very rapidly. The subordinate commanders need the information indicated as a basis for their decisions relating to frontage and depth of deployment, reserves, flank protection, and such matters.

In a meeting engagement but little time is available for protracted study of the situation. A decision must be made quickly, and when made must be adhered to. Subsequent study of that particular situation may, and probably will, disclose better solutions, but from the standpoint of the commander the time element governs. Whether right or wrong, a decision resolutely carried out will be productive of results. The decision will in each case depend upon the mission, the terrain, relative strength, and other special conditions.

In a meeting engagement there are four recognized general modes of offensive action.

(a) Successive attack.

In this form, the leading elements engage the enemy. As fast as the rear elements can be brought forward they are launched into the attack by an extension of the front. Such a procedure results in piecemeal efforts and is warranted only by great numerical superiority or when some

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important feature of the terrain must be secured and no other mode of action is permissible. The clearing of an exit of a defile is an example of this mode of action.

(b) The leading elements attack, while the main body is developed and then launched in a co-ordinated attack in extension of the front of the leading element.

In this form the leading elements (advance guard) have the mission of securing the terrain that will cover the development of the main body, and for forcing the enemy to disclose his strength and intentions. In this case the advance guard has the dual role of forming a screen under cover of which the main attack is launched, and also of executing a holding attack to pin the enemy to the ground in its front. This mode of action does not result in a co-ordinated attack of the whole command, but it has the advantage of gaining time and information for the decisive employment of the main body.

(c) The leading elements hold defensively terrain that will cover the development and launching of the main body in a co-ordinated attack in extension of the front of the leading elements.

A result of this may be that the enemy will attack in force the leading elements, and thus give our own main body an opportunity to strike a surprise blow. If the enemy does not attack at once, it affords the opportunity for the leading elements and the main body to launch a co-ordinated and concerted attack.

(d) Decision may be made to accept battle on terrain in rear of the leading elements, that is, near the main body.

In this form the leading elements delay the enemy sufficiently to permit the main body to deploy, and then fall back on the main body.

The mode of action to be adopted in any situation will depend entirely upon the situation itself. Generally speaking, it may be said that (a) and (d) are the least desirable and would be used only when special circumstances force their adoption. They generally result in piecemeal attacks, which are usually disastrous. Greater chances of success are offered by (b) and (c). Co-ordinated and concerted action is obtained. The initiative is with the commander and he can usually force the fight in accordance with his own plans, rather than have to follow the enemy's lead.

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Practically all meeting engagement situations will require the following steps, in sequence:

(a) Early decision as to the general plan and mission of the advance guard.
(b) Early entrance into action of all available artillery and machine guns.
(c) Immediate development of the main body in its advance to a suitable position for launching an attack.
(d) Attack orders that will insure co-ordinated and concerted effort by the whole command.

It can be seen that under most conditions the action of the advance guard will greatly influence the form of attack. It is essential, therefore, that the advance guard commander receive early and definite instructions as to the plans of the superior commander. Under (b) and (c) the advance guard forms the pivot about which the main body launches its attack. It also secures cover for artillery and machine gun positions, as well as terrain and space suitable for deployment and attack. Artillery and machine gun fire should be opened for the purpose of clearing up the situation, to interfere with the hostile advance, to support the advance guard, and to cover the advance of the main body.

Whether the attack should be straight to the front or to envelop a flank is not so important as the selection of a definite direction for the main attack and one that will insure a concerted effort. A consideration of the terrain, the obstacles, and the time factor involved should indicate whether the main attack should be launched straight to the front in extension of the leading attack, or against one of the hostile flanks.

Bearing in mind the above principles, a special situation will now be taken up and the application of these principles to it considered.

General Situation:

Maps: General Map, Gettysburg-Antietam, 1″=10 miles.
Gettysburg-Antietam Map, 1:21120, Sabillasville, Fairfield, Knoxlyn and Emmitsburg Sheets.

The Potomac River is the boundary between a Red, northern, state, and a Blue, southern, state. These states are at war.

Red forces are concentrating in the vicinity of Baltimore, with several small detachments west of there and along the northern bank of the Potomac.

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A Blue army is being mobilized in the Valley of the Shenandoah. Blue detachments are along the southern bank of the Potomac and in Washington. Blue troops have crossed the river at Harper's Ferry and are advancing towards Chambersburg.

Neither side has any air service at the present time.

Special Situation (Blue):

On 1 September, 1919, the 1st Corps (1st, 2d, 3d and 4th Divisions) has reached the vicinity of Greencastle, with the 1st Division at Waynesboro. On the evening of 1 September, the corps commander receives a message from the army commander to the effect that the Reds are advancing from Baltimore. The army commander further states that he intends to meet the Reds east of the mountains and that it is imperative that the passes east of Waynesboro and at Cashtown be seized at once to allow the debouching of the 1st Army.

The 1st Division is ordered to move on the 2d instant and secure the heights along Middle Creek, from Liberty Hall School to the Emmitsburg—Taneytown road.

This division reached the vicinity of Blue Ridge Summit on the evening of 2 September. Here it halted for the night disposed as follows:

1st Brigade, in the vicinity of Monterey and Charmian, command post at Monterey.
2d Brigade, in the vicinity of the State Sanatorium and Sabillasville, command post at State Sanatorium.
Remainder of division, and trains, in and near Blue Ridge Summit.
Division command post, at Blue Ridge Summit.
Outposts along the general line Fountain Dale—hill 1567.

The following division order was issued for the march on 3 September:

1st Div,
BLUE RIDGE SUMMIT, MD.,
2 Sept 19, 6:00 PM.

FIELD ORDERS
No 4

Maps: Gettysburg-Antietam Map, 1:21120, Fairfield, Knoxlyn, Emmitsburg and Sabillasville Sheets.

TROOPS

(a) Independent Cavalry:
Major A
1st Sq 1st Cav

1. Red forces are advancing from BALTIMORE. A Red force of all arms reached TANEYTOWN about noon today.

Our 2d Div moves to CASHTOWN tomorrow. The remainder of the 1st

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(b) Northern Column:
Brig Gen B
1st Brig
1st LA
Co A 1st Engrs
½ 4th Amb Co

(c) Southern Column:
Brig Gen C
2d Brig
2d LA
Co B 1st Engrs
½ 4th Amb Co

(d) Signal Troops:
1st F Sig Bn (less Dets)

Corps will follow the 1st and 2d Divs on the 4th instant. Our 2d Army starts crossing the POTOMAC RIVER at POINT OF ROCKS on the 3d instant.

2. This division will advance tomorrow, secure the heights along MIDDLE CREEK, from LIBERTY HALL SCHOOL to the TANEYTOWN—EMMITSBURG road, establishing a bridgehead covering the WAYNESBORO pass.

3. (a) The 1nd Cav will move via the WAYNESBORO TURNPIKE, crossing the outpost line at 6:00 AM. A strong patrol will be sent via FRIEND'S CREEK. Officers' patrols will be sent to observe from MCKEE KNOB and hill 1263.

(b) The northern column, starting from CHARMIAN at 6:00 AM, will advance via the WAYNESBORO TURNPIKE, to the line RHODES MILL (exclusive)—LIBERTY HALL SCHOOL (inclusive).

(c) The southern column, starting from SABILLASVILLE at 6:00 AM, will advance via FRIEND'S CREEK to the line EMMITSBURG—TANEYTOWN road—RHODES MILL (both inclusive).

(d) The 1st F Sig Bn (less dets) will follow the northern column without distance.

(e) The 1st FA Brig (less 1st and 2d LA), 1st MG Bn, 1st Engrs (less Cos A and B), Brig Gen D commanding, will follow the northern column at one mile.

(x) Outposts will stand relieved when the reserves of the advance guards pass road junction 771 and crossroads 819.

4. Field trains of the northern column, and of troops enumerated in Par 3 (e) will be assembled in MONTEREY and follow the column of troops specified in Par 3 (e) without distance. Field trains of the southern column will be assembled in SABILLASVILLE and follow that column at one mile.

Division trains will be assembled in BLUE RIDGE SUMMIT and await further orders.

For further details see Adm O No 4.

5. (a) Plan of signal communications: no change.

(b) Axes of signal communications:
1st Div: WAYNESBORO TURNPIKE—ZORA.
1st Brig: WAYNESBORO TURNPIKE—ZORA—crossroads 493 (340.0—739.1).
2d Brig: FRIEND'S CREEK—ORENDORF—road junction 552 (341.3—737.6).

(c) Command posts.
Div: No change until advance guards have passed ZORA, then ZORA.
Brigs: Enroute.

F,
Maj Gen.

Copies to division staff, brigades, regiments, separate battalions, trains and 1st Corps.

The cavalry crossed the outpost line at 6:00 AM with Troops A, B and C on the Waynesboro Turnpike, and Troop D moving via Friend's Creek.

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At 6:30 AM, the cavalry on Waynesboro Turnpike came into contact with Red cavalry, estimated at one squadron, about 2 miles west of Zora.

At 6:55 AM, a message arrived from an officer's patrol on hill 802 (335.1—740.3) stating that a number of Red cavalry patrols were west of Tom's Creek, south of hill 802, and that the ridge south of McKee Knob, east of Tom's Creek, seemed to be occupied by infantry.

At 7:00 AM, a message received indicated that the Red cavalry had established a firing line in the western edge of the woods just north of the word "Waynesboro" and that the Blue cavalry was working to the north.

At 7:05 AM, a message was received from the cavalry on Friend's Creek that cavalry patrols had been encountered about one mile southwest of Zora, and that a patrol on hill 985 reported a long column of infantry, estimated at a reinforced brigade, on the Emmitsburg—Taneytown road, the head at 6:30 AM being at Orendorf Farm, but that there were no signs of any other hostile troops to the northeast, nor to the east.

At 7:00 AM, the heads of the advance guards had reached Fountain Dale and the stream ½ mile east of crossroads 819 (331.8—735.6). Each brigade was similarly disposed and was marching in the following order, with distances as noted:

Point, 1 platoon	30 yards
Distance	100 yards
Advance party, 1 company (less 1 platoon)	95 yards
Distance	300 yards
Support, 1 company	125 yards
Distance	500 yards
Reserve:	
One battalion (less 2 companies) One section 1-pounders One section Stokes mortars One machine gun company	900 yards
One battery light artillery	535 yards
Distance	800 yards
Main body, brigade headquarters	50 yards
One regiment (less 1 battalion, machine gun company and field train)	1890 yards
One machine gun battalion	1760 yards
Regiment light artillery (less 1 battery, field and combat train)	1690 yards
One regiment infantry (less field train)	2965 yards
One company engineers	225 yards
Combat train, regiment of light artillery (less combat train of 1 battery)	1430 yards
One-half ambulance company	130 yards

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At 7:10 AM, a message from the officer's patrol sent to hill 1263, dated 6:45 AM, stated that the Reds, estimated at one brigade of infantry and a battalion of artillery, were apparently taking up a position from hill 722 to hill 564.

By 7:15 AM, it therefore became apparent to the division commander that he was going to meet considerable opposition in forming a bridgehead covering the Waynesboro pass. It was plain that he must attack the enemy, who evidently intended to oppose his advance by holding the heights east of Tom's Creek. He decided to attack.

Required:

The order for the attack.

NOTE:—Weather bright and clear. Roads in good condition.

Discussion

ESTIMATE OF THE SITUATION

Mission

The mission of the division is clearly expressed in the march order, and is to establish a bridgehead east of Waynesboro pass to permit the debouching of a part of the army from that pass. The new situation that has developed after the march has started does not change the mission. On the contrary it makes the securing of the bridgehead all the more important. More and fairly definite information of the enemy has been obtained. The additional information at hand means that the bridgehead must be secured by fighting, instead of occupying it unopposed. The bridgehead is now essential to insure the debouching of the army. The situation is one that demands prompt and decisive action. The division commander has but little time in which to reach a decision. He must attack in order to carry out his mission. Whatever plan is adopted must be decided upon quickly, and resolutely carried out.

The Enemy

At the time of issuance of the march order on the previous evening, information of the enemy was rather limited. All that was known was that he was advancing from Balti-

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more and that a force of all arms had reached Taneytown about noon. In view of the fact that the division commander knew, before issuing his march order, that a hostile force was at Taneytown, the question naturally arises, why did he not send troops at once to secure the exits of the pass? That is not a part of this problem, which is concerned only with the situation that has developed.

At 7:15 AM, it has been established that further advance will be opposed by what appears to be a brigade reinforced by artillery and cavalry. Whether this force is all, or only a portion, of the force reported at Taneytown is not known, and is really immaterial. The fact that no other hostile troops can be seen to the east or northeast makes any early reinforcement out of the question. It is reasonable to assume that the Reds have learned of the Blue advance and that the Red force in sight was moved during the night to oppose the Blue advance from the defiles. All indications point to a stubborn resistance by the Reds from the ridge east of Tom's Creek, that they do not intend to make any aggressive advance west of that ridge, but that the probabilities are they will offer stubborn and determined resistance. The cavalry encountered in the mountains is no doubt a covering detachment. The line that the Reds evidently intend to hold is rather long but it controls the defile and will prevent the debouching of the Blues as long as it is held. Time and delay seem to be the important factors to the Reds.

Our Troops

At this hour (7:15 AM) the Blues have barely gotten started. The heads of the advance guards have only just reached the outpost line. The tail of each column is still in camp and will not be moving for an hour or more. The columns are something over 13,000 yards long. In other words, the tails would not be starting until about 8:45 AM. The division commander can count on no assistance. He has to do the task alone. His problem is simplified to some extent by the fact that he is marching in two parallel columns, so that he can deploy in about one-half of the time that it would take if he were marching in only one column.

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From his march order and dispositions it is evident he anticipated trouble and formed his columns of march accordingly. From all reports his strength is approximately double that of the opposing force. His situation is awkward in that both columns are advancing in ravines, the one along Friend's Creek being especially deep and narrow. It is further complicated by the fact that the columns are separated by high hills, which makes lateral communication difficult. The hills and trees will, however, afford a considerable amount of cover and concealment in making the deployment.

The Terrain

The Waynesboro Turnpike and the Friend's Creek road open out into the valley of Tom's Creek. To the north this valley is quite narrow, but it widens to the south. On the east side of this valley there is a very prominent ridge that runs from McKee Knob south and east. East of this ridge the ground falls away and rises again to the ridge that forms the west bank of Middle Creek. On this ridge east of Tom's Creek there are several prominent points, namely, McKee Knob and hills 722, 789, 652, and 564. Of these, McKee Knob affords a good view to the west and southwest as far as Fountain Dale. Hill 789 affords a good view and partially controls the Waynesboro Turnpike. Hill 652 affords excellent view and control of that pike for about 3 miles, as well as good observation and control of the mouth of Friend's Creek. Hill 564 also controls the mouth of Friend's Creek and the lower part of the valley of Tom's Creek. It is evident that movement along the turnpike is going to be made difficult by hostile artillery fire, and also along Friend's Creek.

It has already been pointed out that Waynesboro Turnpike and Friend's Creek road are along ravines that are separated from each other by high hills. These roads are about 2 miles apart at Fountain Dale and about 1 mile apart at Zora. The hills that separate them are densely wooded with thick underbrush. An unimproved lateral road connects the two roads by way of Cove Hollow and along the gentler slopes east of hill 1408. A branch road leaves the

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Friend's Creek road at 586, skirts the northern and eastern slopes of hill 985, and strikes Tom's Creek Valley about 1200 yards southwest of hill 564. On the south there is no other good road to the east except the one running along Hampton Valley. The Friend's Creek road, while it does not come under the direct observation of the enemy at any place, is narrow and tortuous. It is plain, therefore, that south of Waynesboro Turnpike movement off of roads, while not impossible, will be difficult and slow.

North of the turnpike the country is a little different. It is more open and not so rugged. Between hills 802 and 815, and east of hill 881 the country is fairly open and exposed to view from McKee Knob. Hills 771 and 815 and the woods thereon cut off observation from hill 789. The ravine that runs north from road junction 607, as well as hill 881 and the ridge running south therefrom, afford additional cover for moving troops. In other words, although rather open and exposed, the country to the north of the pike affords considerable shelter and concealment for moving troops and is also such as can be easily traversed off roads with little difficulty. Hills 1408 and 1483 effectively conceal any troop movement to the west.

Plans of Action

Whatever the plan decided upon, the division commander must make up his mind quickly. His troops are advancing and unless a decision is formulated promptly and communicated to the troops without delay the advance guard may bring on a fight that will lack co-ordination and which will take the initiative from the division commander.

It will be remembered that four general modes of action are open to the division commander. Of these (d), accepting battle near the main body, can be eliminated at once. If he adopts (a), successive attacks, a piecemeal attack will result. The enemy apparently has the advantage of earlier deployment, and the attack is going to mean the assault of a position. If each battalion attacks as it comes up, it probably will be wiped out. There is a distance of about 2 miles between the tail of the leading regiment of infantry and the head of the rear regiment, or nearly an hour's

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march. A piecemeal attack will counteract all the advantage that the division commander has in superiority in numbers. This he eliminates.

The plan that seems to be the best one is a combination of (b) and (c)—in other words, an attack by the leading elements to seize and hold ground behind which the main body can be deployed and launched in a concerted attack. For an attack against the ridge east of Tom's Creek the seizing of the heights west of that stream is essential. This means that hills 815, 771, and south to the Lawler Farm, must be held. The eastern edge of the woods forms a good jump-off line. Having seized this line, it must be held defensively until the main bodies can be formed up. Any sort of a piecemeal attack will cause heavy losses, if not disaster. What is necessary is a hard, concerted smash, that will utilize to the full the preponderance of fire power and men. To do this will take time. The advance guards must naturally take the line just mentioned and hold it while the rest of the troops move up into position. As stated before it will be approximately 8:45 AM before the tails of the columns leave their camps. Assuming that the rear battalions would be used as reserves they would have between 5 and 6 miles to advance before being in position, or between two and two and one-half hours of marching. This brief calculation will show that the very earliest that any concerted attack can be launched will be 11:00 or 12:00 o'clock.

Assuming that the division commander will adopt the general plan last discussed, he now has three plans open to him:

(1) To use all of his force and smash ahead all along the line. His superiority in men and guns would probably make this successful, but expensive. No attack can be entirely successful unless a preponderance can be brought to bear upon some particular point.

(2) To make a holding attack against the enemy's right, and the main attack against his left. This has one decided advantage in that, if successful, it will cut the enemy off from his line of communications and supply, and enable the Blue commander to place a force to cover the probable line of advance of any hostile reinforcements. It has several disadvantages, however, which, when taken together, would seem to outweigh the one advantage of cutting the Reds off from their line of communications. Owing to the nature of the terrain it will take longer to get troops into position. While movement off of the road is not impossible, it

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will be slow and will delay the attack. It is important that the Blue division attack at the earliest possible moment consistent with success. If time were not an element there probably would be no question about attacking this flank. In addition the advance across Tom's Creek will be much more difficult and more exposed.

(3) To make the holding attack against the enemy's left and the main attack against his right. The disadvantage of this, of course, is that, if successful, the enemy is merely forced back on his line of retreat. However, where tactical and strategical considerations conflict, tactical considerations govern. It really makes no difference whether the opposing force is forced back on its line of retreat or cut off from it. Only a limited pursuit is anticipated. Success in the combat is the essential. The Blue division commander has but one thing to consider, and that is to establish the bridgehead. His first task is to drive the enemy off the ridge that he is holding and then drive him across Middle Creek. Tactically this plan has several decided advantages. In moving into position the troops will not be confined so closely to the road as along Friend's Creek; the less rugged nature of the terrain will allow much movement off of the roads with very little appreciable delay; it affords more room for maneuver; there is less open and exposed ground to cross when the concerted advance begins; and, even if Red reinforcements are on the way, it will take nearly an hour longer for them to reach this part of the line.

DECISION

The division commander therefore decides:

1. Not to attack at once but to make a concerted attack at 11:30 AM.
2. To make his main attack against the enemy's right.
3. To have the advance guards seize the line hill 815—hill 771—Lawler Farm at once and use this as the jump-off line.
4. To send the cavalry at once to seize and hold McKee Knob and to support the left of the line.
5. To utilize every machine gun and all of the artillery in the attack.
6. To commence fire at once on the enemy by using the howitzers from their present positions.
7. To hold out one regiment from the right brigade as a reserve, so placed as to be available in case Red reinforcements arrive.
8. During the preparation and attack to have the artillery fire controlled by the commander of the field artillery brigade, and to precede the attack by 45 minutes of artillery concentration.
9. To establish his command post at Fountain Dale.

THE ORDER

It is highly improbable that a complete and written order will be issued. In the solution it is placed in that form largely for convenience. The more probable procedure would be a series of messages or even verbal orders. It does not seem necessary in this case to await further developments before issuing an attack order. The division commander has

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no option but to attack, and that at the earliest possible moment. An attack order at this time seems desirable rather than otherwise.

Assuming that the division commander were still at the command post at Blue Ridge Summit the procedure would be to send couriers at once with messages to the cavalry and advance guard commanders. Instructions to brigade commanders could go by telephone, telegraph, or courier, depending upon where they were at the moment. They might also be called to the division command post and given verbal orders.

It will be noted that the attack order is very brief, especially the instructions to the brigade commanders. This will be the rule under conditions of this kind. They are given the details necessary for them to know to insure a co-ordinated effort. These include the boundary between brigades, their objectives, the front, and the support to be given them by the artillery and the division machine gun battalion. The attack order is planned from the map. To attempt to dictate the formations that each brigade will take up would deprive their commanders of initiative, and perhaps tie them down to a formation that the reconnaissance that they will make would show them to be impracticable or even impossible.

A study of the map would indicate the following probable formation: In the 1st Brigade, the right regiment with two battalions in line and one in support forming up under the protection of hill 815 and attacking from the eastern edge of the woods on hill 771; the left regiment moving by the Fairfield Road, or the ravine that runs north from road junction 607 to the cover of hill 802, and attacking from there in column of battalions.

In the 2d Brigade, the leading regiment with two battalions in line, one from Toll Gate to hill 607, and the other from Lawler Farm south, filtering the assaulting line through to the trees along Tom's Creek.

Details of handling the artillery, machine guns, and signal communications will be considered separately later.

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The following order carries out the division commander's decision:

1st Div,
BLUE RIDGE SUMMIT, MD.
3 Sept 19, 8:00 AM.

FIELD ORDERS
No 5

Maps: Gettysburg-Antietam Map, 1:21120, Fairfield, Knoxlyn, Emmitsburg and Sabillasville Sheets.

1. The enemy, estimated at one brigade, one battalion of artillery, and one squadron of cavalry, is holding a position east of TOM'S CREEK, from hill 722 to hill 564.

2. This division will attack at 11:30 AM, and drive the enemy east of MIDDLE CREEK.
   Line of departure: The general line hill 802—hill 771—LAWLER FARM. March conditions will cease at 10:30 AM.

3. (a) The advance guard will seize at once and hold the line from hill 771 to LAWLER FARM.
   (b) The 1st Brig will attack the front hill 772 (inclusive)—ZORA (exclusive). Southern boundary: ZORA—RHODES MILL (both exclusive).
   (c) The 2d Brig (less 4th Inf) will attack the front ZORA (inclusive)—hill 564 (inclusive). Northern boundary: Southern boundary of 1st Brig.
   (d) The 1st Sq 1st Cav (less Tr D) will seize McKEE KNOB at once and support the attack of the 1st Brigade. Tr D will reconnoiter towards EMMITSBURG and to the south.
   (e) The 1st FA Brig will support the attack. One light regiment is attached to each infantry brigade, except that during the preparation and the attack all guns will be controlled by the division commander.
   A concentration of 45 minutes will precede the attack, with field guns well advanced and in positions covering both sub-sectors and howitzers in position south of FOUNTAIN DALE.
   The 3d HvA will open fire at once to neutralize hostile artillery, and observation from ridge south of McKEE KNOB.
   (f) The 1st MG Bn, proceeding via the BLUE RIDGE SUMMIT—SABILLASVILLE—1009—805—655—586 road, and the unimproved roads east of hill 804, will take position in the edge of the woods west of ZORA and will support the attack of the 1st Brig.
   (g) The 4th Inf will constitute the division reserve and will assemble at road junction 586 on FRIEND'S CREEK and await further orders.
   (h) The 1st Engrs (less Cos A and B) will move to FOUNTAIN DALE and await further orders.
   (x) Brigade commanders are charged with the maintenance of suitable connecting groups.

4. Sup, Engr, and F Tns will await further orders in their present locations. Am and Sn Tns are released from the control of the CO Tns.
   Ammunition distributing stations: FOUNTAIN DALE and crossroads 819.
   Stations for slightly wounded: Road junction 2000 yards east of road junction 771, and road junction 655 on FRIEND'S CREEK.

5. (a) Plan of signal communications: no change.
   (b) Axes of signal communications: no change.

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(c) Command posts:
1st Div: FOUNTAIN DALE.
1st Brig: Hill 815.
2d Brig: Farm at 335.8—736.9.
FCC: Church 1500 yards west of TOLL GATE.

F,
Maj Gen.

Copies to:

Staff	1st F Sig Bn
1st Brig	1st Sq 1st Cav
2d Brig	1st MG Bn
1st FA Brig	1st Engrs
CO Tns	1st Corps

The Artillery

The artillery commander can be held responsible for failure, or for any excessive casualties that can be attributed to inertia or inactivity upon the part of the artillery command. It is not the function of the artillery to win the battle, but to employ its fire in such manner as to assure the success of the approach and deployment, the advance of the infantry to the first firing positions, the fire attack, the assault and, finally, the pursuit or exploitation. The artillery must not only assure the success of these successive phases, but by reducing the enemy's powers of resistance, help to keep the casualties that our forces must suffer at a minimum.

Let it be assumed, for example, that during a particular phase of the engagement, a certain volume of effective artillery fire is delivered, and that the infantry is successful in this phase of the engagement at a cost of 300 casualties. Next let it be supposed that it could have been perfectly feasible to have increased by 20 per cent the volume of artillery fire during this phase, either by increasing the rate of fire or by placing a greater number of guns in action. This additional volume of artillery fire might have reduced the infantry casualties to 100. Even though the infantry has been successful in this phase of the engagement, who is responsible that the casualties were 300 instead of 100?

Taking up the problem discussed in the preceding pages, it must be assumed that the orders covering the artillery dispositions are the result of recommendations made by the divisional chief of artillery. The order of march places one light battery with the advance guard of each column. In

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each column the head of the advance guard battery is 2050 yards from the leading element of advance guard. The head of the light artillery regiment in each column is 7085 yards (1 hour 37 minutes) from the leading element of the advance guard. The heavy artillery is to follow the columns, which are 13,525 yards long. The northern column leaves the vicinity of Charmian at 6:00 AM. If the march is not delayed or held up for any reason, the earliest moment that the heavy artillery can take the road is 9:05 AM. The divisional artillery commander has no doubt foreseen the possible need of advancing heavy guns before 9:00 AM. Both the road and the railroad from Charmian to Iron Springs are available, and he has no doubt sent parties to reconnoiter these routes as far as possible. If flat cars are available, a few howitzers can be run down the hill without the need of a locomotive.

Another possible route of advance for the howitzers would be the mountain road east of Blue Ridge Summit. From the map it appears practicable for tractor-drawn artillery, and would no doubt be reconnoitered.

During the night of 2-3 September, an outpost has been established along the general line Fountain Dale—hill 1567. Artillery intelligence officers have been sent out with the outpost, and artillery reconnaissance pushed to the east as long as daylight would permit. Though an attack in force is not probable, it is known that the Reds are advancing from Baltimore, and that at noon on 2 September a Red force of all arms reached Taneytown, a distance of only 16 miles from the outpost line. It will be assumed that the precaution has been taken to place at least two batteries of heavy howitzers in position east of Blue Ridge Summit and a battery of each light regiment in position to enfilade the approaches beyond the outpost line.

At 7:15 AM, sufficient information has been received to make it evident that strong opposition may be expected from a hostile position on the ridge east of Tom's Creek. It is also patent that some resistance will be encountered before a position can be reached from which an attack can be launched against this ridge. In order to carry out his mission, the division commander decides to attack and drive the

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enemy across Middle Creek. How can the artillery be utilized so as to assist effectively in carrying out the division commander's plan? The tasks of the artillery are clear. They are six in number and follow one upon the other:

First Task.— To support the advance of the columns through the defiles and to support the deployment and advance to a first firing position.

At 7:15 AM, the leading element of the southern column has reached crossroads 819, and will be protected from direct hostile observation for another half hour or more; but must advance along roads that can be swept by hostile artillery fire from possible battery positions east and northeast of Orendorf. The northern column has reached the road junction southwest of hill 881, and any further advance toward Zora can be seen by the enemy from hill 652.

Artillery fire is required at once to neutralize hostile observation from hills 652 and 789 and to neutralize the hostile artillery before it can begin sweeping the roads of the defile. The latter is difficult because the positions of the hostile batteries are not known, but from information received, they are evidently in the process of organizing their positions, probably behind the 772—789—652 ridge. The use of non-persistent gas in the valleys east of this ridge would at least reduce the quantity and efficiency of the hostile artillery fire.

The light regiments are due to join the marching columns in 22 minutes. To use the light guns would interfere with the order of march. Furthermore, the ranges from Monterey and Sabillasville are very long for field guns (8,000 to 10,000 meters) and the high hills an obstruction to their flat trajectories.

The battalion of heavy howitzers in position east of Blue Ridge Summit can open fire at once, obtaining firing data from the map (map firing). By establishing observation on the hill north of the State Sanitorium, adjustment can be made on hill 564. Another battalion can be put into action very quickly. To employ the entire regiment for this long range firing would quickly dissipate the long range charges. Two battalions or even three batteries should be sufficient.

Second Task.—To support the infantry in the advance to a jump-off line west of Tom's Creek.

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The fire from the two heavy howitzer battalions east of Blue Ridge Summit will materially assist in this phase of the engagement. The batteries with the advance guards of the two columns will be able to cope with any local resistance requiring artillery fire west of Tom's Creek. North of the Waynesboro Pike there is considerable open ground to be traversed, and it is probable that this would not be attempted until some of the batteries with the main body of the northern column had gone into position and were ready to fire.

Assuming that the columns are not unduly delayed, the 1st Light Artillery could be ready to fire from positions in the vicinity of hill 881 by 9:45 AM; the first batteries to go into position and be ready as early as 9:15 AM.

The southern column has farther to go. The leading battalion could be in position 1½ miles southwest of Zora, ready to fire by 10:00 AM, the second battalion ready to fire from positions near hill 985 at 10:30 AM. If the columns are delayed these positions could not be reached so soon, and it is possible that the light artillery might be forced to take positions further to the rear.

Third Task.—To prepare for the infantry assault by an intense bombardment of the hostile positions and batteries, and so reduce the enemy's power of resistance as to insure the success of the assault with a minimum of casualties.

All batteries should participate in this phase of the engagement and must be in position before 10:45 AM if the assault is to commence at 11:30 AM. The attack order requires a 45-minute preparation. This does not mean 45 minutes of continuous fire at a uniform rate, but bursts of fire upon hostile objectives during a 45-minute period, with an intense concentration upon the principal objectives just before the assault. During a 45-minute preparation each light gun should fire about 75 rounds, and each 155 mm. howitzer from 30 to 40 rounds, depending upon the range. If greater resistance were anticipated a longer preparation might be necessary.

The fire power of the artillery should be controlled at this time by the division commander, as it is desirable to place a preponderance of fire upon the hostile organizations against which the main thrust is to be made. During the

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advance and during the early stage of the fire attack, the advance guard batteries were virtually infantry batteries. They were under the direct command of the advance guard commanders. When the advance guards ceased to exist as such these batteries reverted to the control of their battalion commanders. There is one light regiment with each infantry brigade, but it is likely that the front to be attacked by the left brigade will be covered by three of the four light battalions, for the reason that the main thrust is to be made on the left. The 2d Battalion, 2d Light Artillery, from its positions near hill 985 can support the left infantry brigade by oblique and enfilade fire. On the other hand, the Emmitsburg Road on the right can be swept most effectively by guns on the left. In the present problem, this phase demands centralized artillery control, in order that the best utilization may be made of the available artillery fire.

If the heavy howitzers must follow the northern column, they cannot take the road earlier than 9:05 AM. Two battalions are firing from positions east of Blue Ridge Summit. Assuming that the third battalion starts east over the mountain road at 7:45 AM, circling hill 1449 to the north and then over hill 1166, it could be in position near 898 and firing by 8:30 AM. The other two battalions could then advance successively so as to keep two battalions continuously in action, and all the howitzers could be in position south of Fountain Dale before 10:45 AM. The high hills in front afford excellent observation.

Owing to the weakness of the enemy in artillery, the light gun positions can be well advanced. In this phase and in the next phase the artillery employment should be coordinated with that of the machine guns.

Fourth Task.—To support the infantry attack, assisting it in overcoming any remaining hostile resistance, and preventing the enemy from bringing up reserves, or from launching a counter-attack.

This task can be accomplished from the position now occupied. An accompanying barrage could not very well be employed in this situation. Successive concentrations would be made, first on the enemy's front line, and, as the infantry assault progressed, the fire would be lifted to points

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beyond. The greatest density of fire would be placed where the main thrust was being made.

For the purpose of co-ordinating the artillery fire, normal sectors would be assigned to regiments. These would be subdivided into battalion sectors, and the latter subdivided into battery sectors. Where enfilade and flanking fire could be employed, batteries would be required to fire upon objectives outside of their normal sectors. This would be regulated by the brigade and regimental commanders.

Fifth Task.—To support the infantry in the exploitation and in driving the enemy beyond Middle Creek.

This can be partly accomplished from the present positions, but as soon as the ridge has been captured, the artillery should commence a forward movement. Infantry batteries can be assigned and quickly pushed forward. A battery or even a battalion could be assigned to accompany the reserve regiment.

The forward movement of the artillery should be successive in order that a sufficient number of batteries may be kept in action to meet any contingency. Though the light guns would normally start this movement, the heavy howitzers should not be held in rear until all the light guns have been moved forward. Heavy howitzers moved quickly to positions near Zora could fire on the crossings of Middle Creek with a demoralizing effect upon a retreating enemy.

Sixth Task.—To assist in establishing the bridgehead and in organizing it for defense.

The fifth and sixth tasks merge together. The general line of light guns would be along Flat Run, with a few batteries held farther in rear. The heavy howitzers would be echeloned from Zora to Flat Run.

Success demands a continuous superiority of fire. Instead of limiting the artillery employment to selected phases of the engagement, provision must be made to render the maximum fire support at all times. The early entry of the artillery into action delays the hostile deployment, and causes it to be made at a greater distance. The artillery support during the approach, the deployment, the fire attack, and to the end of the action, not only reduces casualties, but enables the advance to be made more expeditiously.

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While supporting the infantry in its advance against its immediate objectives, the artillery must also prevent reserves from being brought into action, and restrict the activity of the hostile artillery. The greater the difficulties of the infantry, the more powerful must be the artillery support.

Distributing artillery to subordinate commanders to assist in carrying out local tasks should be so regulated that all or a large part of the guns come under the control of the supreme commander during a concerted or a decisive phase of the encounter. By reason of the long range and the flexibility of these weapons, he has a powerful reserve that he can quickly concentrate at nearly any part of the battlefield.

The orders for the artillery employment are given in paragraph 3 (e) of the division attack order issued at 8:00 AM. It is to be noted that this paragraph is brief and very general, and is prepared to meet this particular situation, assuming a well trained, smooth-working artillery command. It covers the following points:

Organization of the Command:
Attaches a light regiment to each infantry brigade, except that all guns come under division control during the preparation and during the attack. This central control is necessary in order to take advantage of opportunities for enfilade and oblique fire, and to bring a preponderance of fire to bear where it will give the best results.

Positions:
Field guns pushed well forward, with fields of fire to include the entire division front, but initiative in the selection of positions left to the subordinate commanders.
Gives general location for howitzer positions.

Time of Opening Fire:
Special and immediate missions for heavy artillery.
All guns to be in position in time to participate in the preparation.

It is highly improbable that a complete written order of this kind could be issued in this situation. It would take the form of a series of verbal orders and messages. The instructions for the heavy artillery to open fire at once will be given verbally, as it can be assumed that both the brigade commander and the commander of the heavy artillery regiment are close at hand.

At 7:15 AM the colonels of the light regiments are already on the road accompanying the infantry brigade commanders, though the artillery regiments do not join the col-

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umn until 7:30 A. M. These regiments are attached to the infantry brigades until the hour for the artillery preparation to begin. Therefore, at this time, the messages or orders involving these regiments must be sent through the infantry brigade commanders and must be signed by the division commander or his chief of staff. These messages or orders impose certain conditions for the final positions that are to be occupied by the light artillery. The final co-ordination and assignment of sectors and objectives for the preparation cannot be completed until it is known where these positions are going to be. The positions of all artillery units will not be known to the artillery commander until a very short time before the artillery preparation, and he will be required to send out his orders by telephone messages or couriers, insuring co-ordination and a united effort, but leaving much of the detail to his subordinates.

Machine Guns

In an attack in a meeting engagement, the following are the principal tasks of the machine guns:

(1) To cover the deployment of the infantry and its advance to the first firing positions.

The range of the machine guns is not sufficient to make them of much value in covering the approach march of the infantry. This task will, as a rule, devolve wholly upon the artillery. The deployment of the infantry, however, will usually be made at such a distance from the enemy's position that the machine guns can be useful in keeping down the enemy's long range machine gun and rifle fire. Whether or not it will be necessary to employ the machine guns for this purpose depends entirely on whether there is cover available for the deployment of infantry. Where suitable cover is available the infantry will need no other protection than that of the artillery.

After the infantry has deployed it will frequently have to advance for some distance to the first firing positions either without cover or with imperfect cover. Under such conditions the machine guns should cover the advance of the infantry from the place of deployment to a first firing position.

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(2) To support the attack of the infantry.

At the moment that the infantry begins its advance from the first firing positions every machine gun should be firing at the maximum rate of fire. Owing to the limited amount of ammunition carried and the heating of the barrels, it is seldom advisable for the machine guns to take part in an extended artillery preparation, but for one or two minutes prior to the launching of the attack they should fire at the maximum rate, and should give continuous support to the infantry from then until the enemy's position is reached. Such support by the machine guns may permit the infantry to advance continuously without resorting to its own fire power. This continuous support will only be possible where there are suitable positions for overhead fire, or where machine gun support can be given from position on the flank. Flank positions will seldom be available. Every effort should be made to use overhead fire.

(3) To support the infantry in continuing the attack or taking up the pursuit after the enemy's main position has been captured.

In a meeting engagement very little will usually be known of the enemy's dispositions in rear of his main position. Definite plans for the use of the machine guns can therefore not usually be made. The best that can be done is to move the machine guns forward by echelon from one suitable position to another, keeping part of them constantly in readiness to support the infantry whenever such assistance is needed.

(4) To assist in the consolidation of the position whenever the limit of the advance is reached or the infantry is brought to a standstill.

At this stage the machine guns should be pushed well forward so as to be able to place flanking fire in front of the position while the infantry is digging itself in and strengthening the position. Later it may be advisable to withdraw the machine guns somewhat farther to the rear.

The division order directed the 1st Machine Gun Battalion (motorized) to proceed by the Blue Ridge Summit—Sabillasville—1009—805—655—586 road and unimproved road east of hill 804 to a position in the edge of the woods

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west of Zora and to support the attack of the 1st Brigade. This general type of order will be the rule in a meeting engagement. There is no time to issue a machine gun plan that carefully co-ordinates the work of all of the machine guns of a division, and there is usually not sufficient information of the enemy upon which to prepare such a plan. The division commander, however, will always provide a definite plan, with a main attack to be delivered against a certain part of the line. It will always be highly desirable to have a decided superiority of fire at this point. Augmenting the fire at this point will very frequently be the mission assigned to the division machine gun battalion. In the present situation the battalion has not been assigned to the 1st Brigade but has been directed to support it, and the division commander has ordered it to occupy a definite position. The position selected is in close proximity to a road that leads both to the front and to the rear. The division commander has thus made it possible to withdraw the battalion from the support of the 1st Brigade and use it in any direction that is necessary. Thus, although supporting the attack, the battalion has not altogether lost its role as a mobile reserve of the division commander. Whether or not it would be withdrawn from the support of the 1st Brigade after the capture of the enemy's main position would depend entirely on the situation at that time.

The machine guns have all been directed to support the brigades. It is therefore necessary to take up their employment from the standpoint of the brigades.

1st Brigade.—The brigade machine gun officer was with the Commanding General, 1st Brigade, at Fountain Dale at 8:00 AM, when the division order was received. General B showed the order to the brigade machine gun officer and added:

> "The 1st Brigade will attack with the 1st Infantry on the right with two battalions in the front line, and the 2d Infantry on the left with one battalion in the front line.
>
> "Direct one company of the 2d Machine Gun Battalion to report to the 1st Infantry at once.
>
> "The 1st and 2d Machine Gun Battalions will cover the deployment and advance of the infantry to the first firing positions just west of the Tollgate—Fairfield road and will support the attack against enemy's position. The 2d Machine Gun Battalion will take position on the ridge 500 yards northwest of hill 815 to cover

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the advance to the first firing positions and will support the attack from hill 771.

"I shall be on hill 815. Your command post will also be there."

The brigade machine gun officer rode back to his battalion, which was 400 yards west of Fountain Dale, assembled his captains at the head of the battalion and issued the following verbal order as the battalion continued forward:

"The enemy, estimated at one brigade of infantry, one battalion of artillery and one squadron of cavalry, is holding a position east of Tom's Creek, from hill 722 to hill 564.

"The 1st Division attacks at 11:30 AM. Our brigade attacks on the front hill 722 (inclusive) to Zora (exclusive).

"The 1st Infantry attacks on the right with two battalions in the front line, and the 2d Infantry on the left with one battalion in the front line. The first firing positions of the infantry will be just west of the Tollgate—Fairfield road.

"Company D will report to the 1st Infantry at once for assignment to an assault battalion. The regimental companies will support the other assault battalions.

"The 1st and 2d Machine Gun Battalions will cover the deployment of the infantry and its advance to the first firing positions and will support the assault against the enemy's position.

"Firing positions:

1st Machine Gun Battalion—the edge of the woods west of Zora.

2d Machine Gun Battalion—ridge 500 yards northwest of hill 815 until infantry reaches first firing positions, then to hill 771 to support the attack. Order of companies from right to left, A, B, C.

"Targets:

1st Machine Gun Battalion—460—570 road to hill 789, both inclusive.

2d Machine Gun Battalion—hill 789, exclusive, to hill 722, inclusive. The subdivision of the target will be made at the firing position.

"During the advance of the infantry to the first firing positions, support will be given to the infantry as it is needed. At 11:28 AM, all guns will open fire at their maximum rate.

"Combat wagons will join companies of 2d Battalion at first firing positions. Combat wagons at disposal of Company D at once.

"The 1st Machine Gun Battalion and Companies A, B, and C, 2d Machine Gun Battalion (from their second firing position only), will establish telephonic communication with command post, 2d Machine Gun Battalion.

"Command post, 2d Machine Gun Battalion, hill 815. I shall be on right of the battalion at the first firing position."

The brigade machine gun officer directed his adjutant to prepare a copy of this order and send it to the 1st Machine Gun Battalion, in position west of Zora.

1st Machine Gun Battalion.—The 1st Machine Gun Battalion had not left Blue Ridge Summit at 8:00 AM.

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It would receive the division order by motorcycle at about 8:15 AM. Making a speed of 12 miles an hour it would reach road junction 655 at 8:55 AM. Here it would come into contact with the southern column. The 3d Machine Gun Battalion would be passing the junction at that time and the tail of the battalion would be about 1200 yards west of 655. If the condition of the roads were such that the motorized battalion could pass the other troops, as appears probable from the character of the road, it would reach its position at 9:10 AM. This would be in time to assist in covering the advance of the infantry to the first firing positions. The advance guard battalion would have reached its position before this time, but it would undoubtedly go in on the right of the brigade, east of hill 771, where the approach is covered and machine gun support unnecessary. Should the condition of the road be such that the 1st Machine Gun Battalion would have to follow in rear of the 3d Machine Gun Battalion, then it would not reach its position until 10:40 AM. This would be too late to be of much assistance during the advance to the first firing positions, but in plenty of time to support the assault.

The target assigned to this battalion has a frontage of about 1100 meters. The range varies from 1000 to 1500 meters. This target can be covered and a platoon kept available for firing on the 460—570 road. The guns that fire on this road can enfilade it and search the reverse slope of the hill if they are placed in the western part of the position. This battalion has a direction of fire that is very oblique to the enemy's position, which will make the fire very effective. Should it become advisable to shift the fire of this battalion to hill 722, it will be possible to do so, although the range, 2200 meters, is too long to expect highly effective results.

2d Machine Gun Battalion.—When the 2d Machine Gun Battalion reached the unimproved road just west of road junction 607, the battalion commander would turn it to the north, and direct it across country to the ridge 500 yards northwest of hill 815. The major and captains would precede the battalion for the purpose of making their preliminary reconnaissance and selecting firing positions. This ridge offers an excellent firing position at ranges of 1700 to 1800

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meters. This is a longer range than is desirable, but if the battalion is to cover the deployment and advance of the infantry to the first firing positions, it must do so from this ridge. The battalion would reach this position at 9:10 AM, which is early enough to be of assistance to the infantry. Should the machine guns take up the position at hill 771, they would probably be too late to be of assistance. The infantry will be most exposed just after it passes over the ridge northwest of hill 815. It will either have to go over the ridge to the east in the open for some distance, or work along the edge of the woods and then filter forward by the flank through the corn field. Either of these movements would require machine gun support if unnecessary losses are not to be incurred.

After the infantry has gained cover the machine guns could begin their move to the northern and eastern slopes of hill 771. There is plenty of cover available, but the woods may be so dense as to render the progress slow. The guns may have to be advanced by hand, but this should be avoided if possible. The carts should be taken as far forward as possible, since they will be needed as soon as the enemy's position is captured. Should the infantry encounter serious resistance in advancing to the first firing positions, the machine guns might not have time to move to hill 771, in which case they would support the assault from their first position. The brigade machine gun officer will remain with the battalion at the first firing position so that he can make the decision himself, and only go to the command post on hill 815 after the guns have moved. In this way he could have the 3d Machine Gun Battalion cover the whole of the brigade front if the 1st Machine Gun Battalion should be delayed in reaching its position.

The target to be covered by this battalion has a frontage of only 900 meters for 36 guns and, in addition, the guns assigned to the assault battalions. This will permit of putting a strong concentration on the part of the line where the main attack is to be made.

2d Brigade.—The brigade machine gun officer was with the commanding general, 2d Brigade, when the division or-

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der was received. General C showed the order to the brigade machine gun officer and added:

"The 2d Brigade will attack with two battalions in the front line and one in reserve. The first firing positions of the infantry will be along the corn fields and woods just west of the Zora—468 road and along Tom's Creek south of the 468—567 road.

"Direct one of your companies to report to the 2d Infantry at once.

"The remainder of your battalion will take positions in the orchard west of Zora, on hill 607, and in the corn field south of Lawler's, and will cover the advance of the right battalion to the first firing positions and will support the attack of the brigade.

"Command post of 2d Brigade and of machine gun battalion at farm house 800 yards west of Lawler's."

The brigade machine gun officer joined his battalion and directed that Company D report to the 2d Infantry at once for assignment to an assault battalion.

The battalion continued on the road and, at 9:20 AM, reached the unimproved road that turns to the south, 700 yards west of crossroads 468. Upon reaching this point the major gave the following verbal order:

"The enemy, estimated at one brigade of infantry, one battalion of artillery and one squadron of cavalry, is holding a position east of Tom's Creek from hill 722 (inclusive) to hill 564 (inclusive).

"The 1st Division attacks at 11:30 AM. Our brigade attacks on the front Zora to hill 564, both inclusive.

"The 3d Infantry makes the attack with two battalions in the front line and one in reserve. The first firing positions of the infantry will be the corn fields and woods just west of the Zora—468 road, and Tom's Creek east of the 468—443 road and south of the 468—567 road.

"Firing Positions:

Company A—The orchard 500 yards west of Zora.
Company B—The northern edge of the woods on hill 607.
Company C—The corn field south of Lawler's.

"Targets:

Company A—From Zora to hill 525, inclusive.
Company B—From hill 525, exclusive, to the southern end of the orchard which is wholly west of the Zora—505 road.
Company C—From west side of the orchard at Orendorf's to hill 564, both inclusive. Special attention will be paid to the roads that lead east from Orendorf and northeast from crossroads 505.

"During the advance of the infantry to the first firing positions, support will be given to the infantry as it is needed. At 11:28 AM all guns will open fire at their maximum rate.

"Combat wagons in woods west of Lawler.

"Companies will establish telephonic communication with battalion command post.

"Battalion command post at farm house 800 yards west of Lawler."

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There are no positions farther to the rear from which the machine guns could have covered the advance of the infantry to the first firing positions. The advance guard battalion in all probability would form the left assaulting battalion of the brigade and would be in position when the machine guns arrived. The approach to this position is covered and it could be occupied without machine gun support. The right battalion would deploy in the woods southeast of Lawler's and would have to filter forward to its first firing positions east of the Tom's Creek. During this process it would need strong machine gun support.

All of the positions assigned are on high ground, so that support can be given the infantry until they are near the enemy's position. The frontage to be covered is quite wide, 2200 meters. However, the guns on the left almost enfilade a part of the line, which adds greatly to the frontage that can be effectively covered. The ranges vary from 500 meters to 1800 meters. The machine gun support in this brigade is not so good as in the 1st Brigade, but it is not so essential since the main attack is not being made at this point.

Signal Communications

The signal communications of the division during its action in the meeting engagement will now be considered. The division is ordered to proceed from Waynesboro and to seize a bridgehead position covering the Waynesboro Pass west of Emmitsburg. In order to get a clear conception of the necessary signal communications, it will be well to trace them from the beginning and follow their development.

The division is acting as a part of the corps which itself forms a part of an army. The division is operating through a region that is fairly well populated, where roads are presumably good and where commercial telephone lines exist. The inhabitants, however, are hostile.

The Blue army has just begun a campaign. Presumably there has been drawn up and issued a plan of signal communications for use throughout the army during the campaign. This plan prescribes the methods and details of signal communications which will govern throughout the

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campaign, with the idea that the necessary changes will be published from time to time as they become necessary.

In the same manner the plan of signal communications for the corps has been drawn up based on the army plan, and also the plan for the division based on the army and the corps plans. The existing plan for the division prescribes such matters as radio call letters, wave lengths and special regulations for the different radio nets, the codes, the pyrotechnic and panel signals that would be used, the identification panels employed by each unit, and matters of like nature. Unless there is some change in these details this plan will hold good throughout the campaign. When it becomes necessary for the army or the corps to make any changes in the existing plans, the division will be notified and will publish the changes to the command in the proper form. It will be necessary, however, to prescribe the axes of signal communications and the location of command posts for each particular operation, so that courier routes and telephone lines may be co-ordinated during that particular action.

It must be borne in mind that the details from the division signal battalion which are sent to each regiment and brigade are permanently assigned to these units. It is therefore presumed that these details have been attached to their units permanently before the campaign opened.

It must also be borne in mind that courier and radio communications between all units equipped with radio are automatic and are always established during a halt of any duration. Whether or not these particular methods of communication are actually employed depends on the circumstances that exist at the time.

Turning to the problem, on 1 September the Blue corps has reached Greencastle and the Blue division has established its headquarters at Waynesboro, with the elements of the division encamped in the vicinity. There has been no contact with the Red forces. Telephone and telegraph communications have presumably been established from Greencastle to Waynesboro between the corps and the division, the commercial system being used. The commercial telephone office at Waynesboro has been taken over by a detachment from the division signal battalion. Communi-

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cation within the division is probably by radio or courier, unless by chance the headquarters of the subordinate units have been located in close proxmity to a telephone office of the commercial system.

When the division commander, probably on 1 September, after he has reached Waynesboro, receives orders to move his division toward Middle Creek and to secure a bridgehead covering the Waynesboro Pass, he assembles his staff for a conference and talks over with them the mission of the division and the details of the march to Middle Creek.

The signal officer then learns that the halt of the division on the evening of 2 September will be in the vicinity of Blue Ridge Summit, and that on 3 September the division will proceed through the pass and occupy the bridgehead position. He immediately makes the necessary preparations to send advance telephone, radio and message center details to Blue Ridge Summit. The message center and radio sets are ordered to move forward by echelon. Telephone and telegraph communication from Waynesboro to Blue Ridge Summit, and from the new division command post at Blue Ridge Summit to the command posts of the brigades at Monterey and the State Sanitorium, should be established as soon as possible, using the existing commercial system. The division signal officer communicates with the brigade signal officers, gives them the information and suggests that they also send advance telephone details forward to establish communication from the new locations of the brigades to their regiments and, if the tactical situation requires it, to the outpost commander. It would not be advisable at this time to plan to lay field wire, since the necessary communications could be carried on by courier or radio if the commercial telephone system were not available. Field wire is very bulky and difficult to transport. It should not be laid prematurely, since by doing so the supply would be frittered away and a sufficient amount would not be on hand when it was really needed.

On 2 September the division signal officer goes forward to Blue Ridge Summit, where he arrives as soon as the advance troops have cleared that point. He personally supervises the establishment of the communications and recon-

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noiters the routes for the following day. During a march of the character of the one under consideration, the continuous presence of the signal officer at division headquarters is not necessary. When the division becomes actively engaged he should, however, stay fairly close to the division command post, in order to be in constant touch with the ever changing conditions.

The division signal officer arrives at Blue Ridge Summit at about 10:30 AM and sees that the commercial telephone and telegraph office has been taken over by his advance detail. He sees that the officer in charge of the telephone detail gets into touch with the division billeting officer to find out where the offices of the division commander and his staff will be located, so that the necessary local telephones may be installed for them. He sees that the officer in charge of the advance echelon of the division message center finds out from the billeting officer the location assigned for the message center, and establishes it properly. He then calls Monterey and the State Sanitorium by telephone and sees that those offices have been properly taken over by the respective brigade details. If he finds that this is not being done satisfactorily, he may proceed to these places and make the necessary arrangements. (Note: The telephone exchange for the State Sanitorium may be in Sabillasville.)

By this time, 1:00 PM, the division G3 or one of his representatives probably has arrived at Blue Ridge Summit. If not, the signal officer gets into touch with the operations staff at Waynesboro and learns the situation, which is as follows: The outpost positions from Raven Rock Mountain to hill 567 have been occupied and no enemy has been encountered. Patrols report no enemy between that position and Middle Creek.

There are two propositions for the next day that the signal officer must consider. First, the division may reach the bridgehead positions without encountering the enemy. Second, opposition may be met.

In the first case the signal officer plans to employ the usual courier and radio communications between all units during the march to the bridgehead. The commercial telephone system will be used by both columns enroute by tem-

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porarily taking over the telephone centrals and using local telephones in passing. When the bridgehead positions are occupied it will probably be advantageous to replace the commercial telephone lines from Zora to brigades and to regiments by field lines. This is because the position will probably sooner or later be subjected to a heavy attack and much artillery fire, which will quickly destroy the overhead bare wire commercial telephone system.

If the Blue division comes in contact with the enemy before the bridgehead positions are reached, the question arises as to where this opposition will probably be encountered. If the Reds discover the presence of the Blue division in the mountains, it is probable that they will oppose it by placing themselves across the Waynesboro Pass, in order to close the pass to the Blue division and any troops in its rear. The first probable opposition would then be from the high ground just east of Tom's Creek.

The signal officer knows the intentions of the division commander concerning the route of the northern and the southern brigades, and also the route of advance of the division command post from Blue Ridge Summit. He therefore decides to recommend the following: division axis of signal communications; Blue Ridge Summit—Waynesboro Turnpike—Zora—road junction 460—crossroads 570—493 to Middle Creek; the axis for the northern brigade to coincide with the division axis; the axis for the southern brigade to be the State Sanatorium—Sabillasville road along Friends Creek—crossroads 468—Orendorf—road junction 475—552—511—Middle Creek.

When the enemy is encountered, it will probably be necessary to lay telephone communications with field wire. In this case, the signal officer decides to lay his field wire along the division axis, Waynesboro Turnpike, and to connect the northern brigade directly to the axis.

The southern brigade, advancing along Friends Creek, will be separated from the remainder of the division by very difficult terrain until the pass is reached. It seems that every means of communication should be utilized to the fullest extent. The signal officer therefore decides to lay field wire from Fountain Dale south to crossroads 819 and

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thence along the Friends Creek road to the command post of the southern brigade at farm house 700 yards west of crossroads 468, and also to connect the southern brigade by a lateral to a division forward communication center at the church on the Waynesboro Pike, the lateral line running in rear of hill 804.

The probable location of forward communication centers along the axis seems to be Fountain Dale, the church 1500 yards west of the Tollgate, and Zora. Fountain Dale being within the Blue outpost line of 2 September, the division signal officer intends to send an advance telephone detail from the division signal battalion to take over the telephone office there and to establish on the afternoon of the 2d the division wire dump, preparatory to moving it forward along the axis on September 3d.

The signal officer gets into touch with the division G3 as soon as possible and gives him his recommendations. He would probably talk the matter over with the chief of staff before doing so.

On the evening of 2 September, the communication system within the division is as follows:

Division command post: Blue Ridge Summit.
Northern brigade command post: Monterey.
Southern brigade command post: State Sanitorium.
Message centers are established at the headquarters of each unit.
Courier and radio communication is established between these message centers.
Forward communication center: Fountaindale.
The brigade command post is with the division command post at Fountain Dale.

The commercial telephone offices at Blue Ridge Summit and Fountaindale are taken over and operated by detachments from the division signal battalion.

The commercial telephone offices at Monterey and Sabillasville are taken over and operated by signal detachments from the brigades.

The necessary individual telephones are installed at each headquarters. At division headquarters the necessary telephones would probably be one for the chief of staff and commanding general, one for the operations section, one for the intelligence section, one for the supply section, and one for the message center. At each brigade headquarters,

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one for the brigade operations officer and commanding general.

The division signal officer further intends to establish a forward communication center at the church on the Waynesboro Turnpike about 1500 yards west of the Tollgate, and from there to push the division axis on to Zora as soon as possible.

The field order for the movement of the division on 3 September is gotten out and distributed on the evening before. At about 6:00 AM, 3 September, the forward movement begins. At about 7:30 AM the division commander, having received the information of the activity of the enemy, realizes that the ridge east of Zora is in hostile hands, and that it will be necessary for him to attack this position in order to carry out his mission. He immediately assembles his staff and goes over the situation with them. As a result of this conference the order for attack is issued.

Division headquarters is still at Blue Ridge Summit and the brigade headquarters have not moved from Monterey and Sabillasville. The only opposition that is expected before Tom's Creek is reached, according to the information received, will be from the small Red cavalry force on the high ground south of hill 815.

The signal officer intends to push his axis along the Waynesboro Turnpike as soon as possible to the church 1500 yards west of Zora, and to establish a communication center there. From that point he will run a short lateral to the command post of the northern brigade on hill 815 and to the command post of the southern brigade at the unnamed farm house on Friend's Creek, 700 yards west of crossroads 468. The forward communication center at Fountaindale is ready to be converted into the division command post by moving there the necessary message center, radio and telephone advance details. A line of field wire will also be run south from Fountaindale to crossroads 819, and thence along the Friends Creek Road to the initial command post of the southern brigade.

The signal officer decides to use the commercial system along the axis to Fountaindale. From that place he decides to run two circuits of field wire forward along the

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axis. Each infantry brigade will establish its own telephone communication to its regiments as needed. The southern brigade will establish a line to the 4th Infantry, which is a regiment of this brigade and also to the division reserve. The division can then communicate with its reserve through the southern brigade.

As the action progresses, the two brigades will move forward to the bridgehead positions and occupy them as originally intended. The division axis will be pushed forward along the route chosen for it, and lateral lines from it to the brigades will be laid as they become necessary. It is evident that the command post of the northern brigade will always be on the division axis and will require no laying of lateral lines, except for very short distances of 100 yards or more. It will probably be expedient for the signal officer to lay a line to Orendorf from the communication center when it arrives at Zora, and from there to follow the southern brigade to its ultimate command post by a separate axis. Thus, the telephone lines, when the division headquarters arrives at Zora, will be direct from that place to each brigade headquarters. This can well be done since the position is intended to be a more or less stabilized one for a time, and the distances from Zora to the brigade headquarters will be very short.

The signal officer immediately consults with the artillery brigade commander or a member of his staff and finds that the artillery dispositions will be as follows:

The brigade command post with the division command post at Fountaindale.
Command post of the 3d Heavy Artillery at Blue Ridge Summit, with its battalions grouped south of hill 1142.
Command posts of the two light regiments with the respective infantry brigade commanders.

The signal officer sees that the light artillery can well use his axis for this engagement, which will probably be a short one. The artillery brigade commander at the division command post can communicate along the division axes to both of the light regiments, which are at their infantry brigade command posts. The communication within the light artillery regiments will be established by the artillery regimental signal personnel.

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The artillery regiments will establish communications to their own battalions. The light artillery regiments will probably keep their command posts with those of the infantry brigade commanders during the action. Their battalions will probably advance by echelon, and at times it may be practicable for the artillery to make use of the infantry brigade axis. As a general thing, however, it would be better for the artillery regiment to lay its own wires to its battalions, running lines to the station on the brigade axis as opportunity presents.

The signal officer learns that the 3d Heavy Artillery expects to move its command post to road junction 894, one mile south of Fountaindale as the attack progresses, and will run an axis of its own and establish a forward communication center at that point for communication with its battalions at the beginning of the engagement. The artillery brigade signal officer will run a line for the artillery brigade commander from Fountaindale to the forward communication center of the heavy artillery regiment at road junction 894 for communication with that command post. The artillery brigade will be responsible for this communication as the action progresses. However, as successive positions are taken up, use may be made of the division axis for this communication whenever possible.

(B-2) MEETING ENGAGEMENT—MAP PROBLEM

MAJOR H. J. BREES,
Cavalry

Maps: General Map, Gettysburg-Antietam, 1″=10 miles.
Pennsylvania and Maryland Geological Survey Map, 1:62500, Fairfield, Gettysburg and Taneytown Sheets.
Gettysburg-Antietam Map, 1:21120, Newman, Arendtsville, Knoxlyn, Gettysburg, Bonneauville, Taneytown and Kingsdale Sheets.

Part I

General Situation:

War exists between an Eastern (Blue) and a Western (Red) state. Meridian 77° 30′ forms the boundary between the two states. The Reds have been mobilizing in the valley

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west of the Catoctin and South Mountains. The Blues have been mobilizing east of Parr's Ridge.

Special Situation (Blue):

(See 1:62500 Map.)

The 1st Corps (1st 2d, 3d, and 4th Divisions) completed its mobilization near Westminster on August 30, 1920. On 1 September, 1920, the 1st Division moved out on the Baltimore Pike and halted for the night between Littlestown and Union Mills with outposts along the general line of the Northern Central Railroad from Kingsdale to Lefevre. The 2d Division is on the Taneytown Road with outposts along the general line Galt—Kump P. O.—Crabster. The 3d and 4th Divisions and corps troops are at Westminster.

At 9:00 PM, 1 September, 1920, General A, commanding the 1st Division, receives the following message from the corps commander:

1st Corps,
WESTMINSTER, MD.,
1 Sept 20, 8:30 PM.

CG 1st Div,
By courier.

Reliable information indicates a Red advance via the CHAMBERSBURG and WAYNESBORO passes. The 2d Div advances tomorrow to ZORA to prevent the Red advance on WAYNESBORO TURNPIKE. The 3d Div moves tomorrow to UNION MILLS. The 4th Div remains here. You will move tomorrow and seize and hold GETTYSBURG.

By command of Maj Gen X,

ABC,
C of S.

In compliance with the above order the 1st Division moves at 6:00 AM, 2 September, 1920, in the following order:

Independent Cavalry—1st Squadron, 1st Cavalry		
Point—1 platoon, Company A, 1st Infantry	30	yards
Distance	100	"
Advance Party—Company A, 1st Infantry (less 1 platoon)	95	"
Distance	300	"
Support—1st Battalion, 1st Infantry (less Company A)	520	"
Distance	500	"
Reserve—1st Infantry (less 1st Battalion and field train)	2320	"
1st Battalion, 1st Light Artillery (less field train)	1650	"
Company A, 1st Engineers (less field train)	225	"

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4th Ambulance Company	340	yards
1st Field Signal Battalion (in interval between advance guard and main body. Commercial telephone lines and motorcycle couriers being utilized for communication on the march).		
Distance	880	"
Main Body—Division heaquarters (less 2d echelon)	200	"
Company B, 1st Engineers (less field train)	225	"
1st Brigade (less 1st Infantry and less field trains)	4765	"
1st Field Artillery Brigade (less 1st Battalion, 1st Light Artillery, 3d Heavy Artillery, and combat and field trains)	3165	"
2d Brigade (less field trains)	7730	"
1st Engineers (less Companies A and B, and field train)	1235	"
1st Machine Gun Battalion	1010	"
3d Heavy Artillery (less combat and field trains)	2900	"
Combat Train, 1st Field Artillery Brigade	4865	"
1st Sanitary Train (less 4th Ambulance Company)	2055	"
1st Observation Squadron	535	"
Trains—Field trains.		
Division trains (less sanitary train).		

At 6:30 AM an airplane reports that the head of a hostile column of infantry was at Seven Stars at 6:00 AM, and that the road through the pass west of Cashtown was filled with troops.

At 9:00 AM the division commander, who has ridden forward to Two Taverns, receives a message from his cavalry commander, dated Power's Hill, 8:30 AM. It states that hostile cavalry patrols have been encountered near Power's Hill at 8:00 AM, and have fallen back towards Cemetery Hill. A Blue patrol on Benners Hill reports hostile infantry in Gettysburg, and another on Little Round Top reports that the Chambersburg Pike, from Gettysburg to Cashtown, is filled with infantry and artillery.

At 9:15 AM a dropped message from an airplane, dated 9:00 AM, reports hostile infantry advancing south from Cemetery Hill; a column, estimated at a brigade of infantry and a regiment of artillery, on the Chambersburg Pike, the tail being just east of Cashtown; and another column of infantry and artillery advancing on the 787—713 road, the head being at 713 (337.7—754.8).

At 9:45 AM a message from the advance guard commander, dated Power's Hill, 9:30 AM, reports the head of

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the advance guard at Power's Hill in contact with hostile infantry, which is deploying.

At 10:00 AM another message from the advance guard commander reports that his advance has been stopped at Power's Hill and that the hostile infantry is preparing to attack. At the same time another airplane message reports one battalion light artillery going into position on Seminary Ridge, about 500 yards southwest of the O. M. Miller Farm (348.4—748.5).

At this hour (10:00 AM) the tail of the advance guard is near the junction of the Baltimore Turnpike with the Low Dutch Road, and the head of the main body has just reached the eastern exit of Two Taverns. The independent cavalry is at the Peach Orchard and hill 592 with patrols on Hanover Road.

Required:

The decision of the division commander, and orders actually given by him at this time.

Time allowed—1½ hours.

An Approved Solution—Part I

Decision

To attack as soon as troops can be gotten into position, making the main attack with the 2d Brigade against the enemy's right from the vicinity of the Round Tops; to have the cavalry and advance guard seize and hold the line hill 564—Powers Hill—hill 592—Round Tops and cover the development; to utilize the roads south of Baltimore Pike for moving the 2d Brigade and artillery into position.

Orders Actually Issued by the Division Commander

By motorcycle courier to the Commanding Officer, 1st Squadron, 1st Cavalry:

> "I propose to attack the enemy from the vicinity of the Round Tops. You will seize and hold those places and screen our movements. The 1st MG Bn has been directed to reinforce you and should join you at the J. Musser Farm by 11:30 AM."

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By motorcycle courier to advance guard commander:

"I propose to attack the enemy from the general vicinity of the ROUND TOPS. The 1st Squadron 1st Cavalry will hold the ROUND TOPS. You will seize and hold the line hill 564—POWERS HILL—hill 592 and cover our development."

By motorcycle courier to Commanding General, 2d Brigade:

"Enemy encountered near GETTYSBURG. I propose to attack from vicinity of ROUND TOPS. Move your Brigade on ROUND TOPS at once. Move leading regiment via GERMANTOWN—road junction 520—crossroads 491—J. FOSTLE FARM, and the rear regiment via LITTLESTOWN—BARLOW."

By motorcycle courier to Commanding Officer, 1st Machine Gun Battalion:

"Move at once via KINGSDALE and BARLOW and join 1st Squadron 1st Cavalry at the J. MUSSER FARM, east of LITTLE ROUND TOP, not later than 11:30 AM."

Verbally to Commanding General, 1st Brigade:

"Enemy has been encountered south of Gettysburg. I propose to attack from vicinity of Round Tops. You will reinforce advance guard and seize and hold the line hill 564—Powers Hill—hill 592. Our cavalry holds the Round Tops on your left."

Verbally to Commanding General, 1st Field Artillery Brigade:

"Enemy has been encountered south of Gettysburg. Our advance guard and cavalry hold the line hill 564—Powers Hill—hill 592—Round Tops. I propose to attack from that line. Move artillery forward into action at once placing one light artillery regiment along the Baltimore Pike, the other light artillery regiment near hill 532 (351.0—745.8), and the heavy regiment near the H. Swisher Farm."

Verbally to the signal officer:

"For the attack the division command post will be at the Bushman Farm (351.5—744.2). Division axis of signal communications: J. Musser Farm—Gettysburg."

Part II

By 1:00 PM the situation has developed as follows:

Blue airplanes have reported the Reds hastily intrenching on Culp's Hill, Cemetery Hill, hill 606, and at the N. Codori Farm.

The southern Red column reached Willoughby Run at 12:00 noon. Here it commenced to deploy, and advanced

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until its leading detachments now extend the Red line from the N. Codori Farm south through hills 584 and 587. Indications point to a defense along this line. This column has been harassed somewhat by the Blue observation squadron and at 1:00 PM its tail is about midway between Knoxlyn and Orrtanna. Hostile artillery has been located on Seminary Ridge and on the Hagerstown Road northeast of Black Horse Tavern.

Detachments of Blue cavalry are holding from hill 592 to the J. Rose Farm; the 1st Machine Gun Battalion is in position on hill 574; the 1st Brigade holds from hill 592 to hill 564; the 1st Light Artillery is in position near the G. Gilbert Farm on the Baltimore Pike; the 2d Light Artillery is in position near hill 532; the head of the 3d Heavy Artillery is at the Koon Farm (354.8—737.5); the head of the 3d Infantry is at the J. Fostle Farm (352.5—743.8), followed by the 3d Machine Gun Battalion, whose head is at the King Farm (353.7—741.6); the head of the 4th Infantry is at the Miller Farm (353.5—740.3); the head of the 1st Engineers is at Germantown. A message received from the 2d Division at 1:00 PM indicates that it is meeting considerable opposition near Emmitsburg.

Required:

The attack order.

Time allowed—2½ hours.

An Approved Solution—Part II

1st Div,
TWO TAVERNS, PA.,
2 Sept 20, 1:30 PM.

FIELD ORDERS
No 3

Maps: Gettysburg-Antietam Map. 1:21120, Newman, Arendtsville, Knoxlyn, Gettysburg, Bonneauville, Taneytown and Kingsdale sheets.

1. Reds have been encountered south of GETTYSBURG. One brigade holds the line CULP'S HILL—CEMETERY HILL—hill 606. The head of a second brigade is extending this line from the N. CODORI FARM through hills 584 and 587. The tail of the second brigade is now west of KNOXLYN.
2. The division will attack at 3:00 PM and drive the enemy west of WILLOUGHBY RUN.
   Line of departure: hill 564—POWERS HILL—hill 592—574—561 (349.0—745.4).

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3.(a) The 1st Brig will attack the front CULP'S HILL—N. CODORI FARM (both inclusive).
Left boundary: hill 592 (inclusive)—hill 577 (exclusive)—hill 541 (exclusive)—E. HALL FARM (exclusive).
(b) The 2d Brig will attack the front N. CODORI FARM (exclusive)—hill 587 (inclusive) pushing its left forward vigorously.
Right boundary: Same as left boundary of 1st Brig.
(c) An artillery preparation of 30 minutes will precede the attack. During the preparation and the attack all guns will be controlled by the division commander. As soon as the enemy is driven from his first position, 1 bn 1st LA will be attached to the 1st Brig, and 1 bn 2d LA to the 2d Brig, in direct support of those brigades.
(d) The 1st MG Bn will support the attack of the 2d Brig from positions on hill 574.
(e) The 1st Sq 1st Cav will cover the left flank of the 2d Brig and will support its attack.
(f) The 1st Obsn Sq will maintain constant observation of all enemy movements. It will report the progress of the attack hourly on the hour. It will harass by bombing and machine gun fire the southern Red column. One flight is attached to the 1st FA Brig for observation.
(g) The reserve, consisting of one battalion from the 4th Inf and one battalion from the 1st Engrs, will await further orders near the WEIKART FARM.
(h) The 1st Engrs (less 1 bn) as directed in Adm O No 3.
(x) Brigade commanders are charged with the maintenance of suitable connecting groups.

4. Station for slightly wounded: DIENER FARM.
Ammunition distributing station: ST. MARY'S RF. CHURCH.
The Am and Sn Tns are released from the control of the CO Tns.
CO Tns.
All other trains will await further orders at GERMANTOWN.
For other administrative details see Adm. O No 3 (omitted).

5. (a) Plan of signal communications: no change except that panels will be displayed hourly on the hour.
(b) Axes of signal communications:
Division: BUSHMAN FARM—J. MUSSER FARM—GETTYSBURG.
1st Brig: RJ 522—RJ 545—GETTYSBURG.
2d Brig: J. MUSSER FARM—hill 526—hill 587—GEO. CULP FARM.
(c) Command posts:
Division: BUSHMAN FARM.
1st Brig: RJ 522.
2d Brig: J. MUSSER FARM.

A,
Maj Gen.

Copies to:

Div Staff
1st Brig
2d Brig
1st FA Brig
1st F Sig Bn
1st MG Bn
1st Sq 1st Cav
1st Obsn Sq
CO Tns
1st Corps
2d Div
1st Engrs

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(B-3) MEETING ENGAGEMENT—MAP PROBLEM

MAJOR LAURENCE HALSTEAD,
Infantry

Maps: General Map, Gettysburg-Antietam, 1"=10 miles.
Gettysburg-Antietam Map, 1:21120, Gettysburg, Hunterstown, New Oxford and Bonneauville Sheets.

General Situation:

The line Monocacy River—Piney Creek—Littlestown—Manchester separates hostile states, Red to the east, Blue to the west. War has recently been declared and both sides have been organizing for the struggle—the Blues at Carlisle, York Springs, Center Mills and Biglerville; the Reds at Ebbvale and New Freedom. Spring Grove contains an important Red arsenal, while York Springs is of great importance to the Blues, as it contains the principal gun factories of the Blue state. The Blues are somewhat more advanced in their preparations than the Reds. The Conewago is unfordable from the point (360.0—759.6) to the east.

Special Situation (Blue):

On 19 April, 1920, a heavy column consisting of the 2d Division, to which has been added a reinforced brigade, was started from Carlisle to proceed via Dillsburg and Wellsville on Spring Grove and capture the Red center there. On 20 April, in the afternoon, the 1st Blue Division was started from Center Mills and Biglerville under orders to proceed via Guldens, Cedarridge, and Irishtown to Spring Grove to co-operate with the 2d Division. The 1st Division moved via the general route selected, as it was known that the bridges at Diehls' Mill and Aikenrode had been destroyed.

Shortly after the 1st Division started, air service units reported a column of hostile troops to be marching north, head of the column approaching Hanover. The strength of the column was estimated at an infantry division very weak in cavalry and without any air units.

The 1st Division marched in two columns. The right column consisted of the 1st Cavalry (less 1st Squadron), 2d Brigade, 1st Field Artillery Brigade (less 1st Light Artil-

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lery), Company A, 1st Engineers, and 4th Ambulance Company, marched via the Biglerville—Hirst—Table Rock—Herman—Goodintent S. H.—542—556—592—602—Granite Hill Station—562 road. The cavalry, operating in advance of the column, sent back early information of a hostile column marching northwest and crossing the Little Conewago at Topper Mill (southeast of Centennial). Cavalry contact with inferior hostile cavalry was made at Square Corner and J. Noel, but beyond this no contact with the enemy was had by the right column.

The right column bivouacked for the night 20-21 April along the route as follows:

> Advance guard: 3d Infantry (less 3d Battalion), 1st Battalion, 2d Light Artillery, Company A, Engineers, at 572 (358.7—750.8) with outposts on the general line, wood 1000 yards northeast of Geisler—woods east of Geisler—woods west of A. Smith—woods north of Hagerman—M. Fink. 1st Cavalry (less 1st Squadron) at Bonneauville with active patrolling towards Square Corner, Whitehall and the Little Conewago.

Remainder of right column:

> 3d Battalion, 3d Infantry, east of Granite Hill; 1st Field Artillery Brigade (less 1st and 3d Artillery, and combat trains) from crossroads 617 to road junction 602; 3d Machine Gun Battalion in woods north of Round Top S. H.; 4th Infantry, from road junction 602 to stream crossing 1200 yards northwest of road junction 556; 3d Heavy Artillery with 4th Ambulance Company from above point to R. Smith; artillery combat trains (less those of the 1st Light Artillery and the 1st Battalion, 2d Light Artillery) R. Smith to Goodintent S. H.; Commanding General, 2d Brigade (commander right column), Granite Hill Station.

The left column, consisting of the 1st Brigade, 1st Light Artillery, 1st Engineers (less Company A), 1st Squadron, 1st Cavalry, 1st Field Signal Battalion, and 1st Ambulance Company, marched on the Center Mills—J. Fohl—Friends Grove S. H.—Bridge S. H.—561—Woodside S. H.—546—Hunterstown—585—573—Cedarridge road. At 6:00 PM, April 20, contact with the enemy was made by this column in the vicinity of Cedarridge. An advance guard action resulted, so that at nightfall the advance guard, consisting of the 1st Infantry (less 3d Battalion), the 1st Battalion, 1st Light Artillery, and the 1st Squadron, 1st Cavalry, was engaged on the line, woods 800 yards north of road junction 593—houses 300 yards northwest of road junction 593—woods 1000 yards southwest of road junction 593. The 1st

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Ambulance Company was brought up to road junction 573 (east of Guldens). The cavalry squadron was assembled at Brush Run, with patrols to the east and to the southeast in contact with weaker Red cavalry at 532 (364.6—752.9). The artillery battalion had taken up a position in the vicinity of the hill 562 and road junction 552 (both just south of Moritz S. H.).

The remainder of the left column bivouacked as follows:

> 3d Battalion, 1st Infantry, just east of Guldens; 1st Field Signal Battalion in Guldens; 1st Light Artillery (less 1st Battalion), but with combat trains of entire regiment, from road junction 573 (east of Guldens) to a point on the road 900 yards northwest of road junction 600; 2d Machine Gun Battalion, from the above point to 585; 2d Infantry, from road junction 585 to road junction 546; 1st Engineers (less Company A) from road junction 546 to the north to Woodside S. H., exclusive; headquarters, Commanding General, 1st Brigade (commander left column), Guldens.

Other elements of the division were bivouacked and stationed for the night as follows:

> Observation squadron, Center Mills; 1st Machine Gun Battalion, Woodside S. H.; Train Headquarters and Military Police at Biglerville; 1st Ammunition Train, Biglerville; 1st Supply Train Biglerville; 1st Sanitary Train (less 1st and 4th Ambulance Companies and 4th Field Hospital) at Center Mills; 1st Engineer Train, Center Mills. 4th Field Hospital at crossroads 616 (south of Plainview). Field trains have joined troops.

By 3:00 AM, 21 April, information has been received at the division headquarters at Guldens as follows:

> (a) The Reds hold with advanced detachments of infantry and machine guns the line 607—612—woods southeast of 587—woods east of 593—road junction 900 yards northeast of 593. Red artillery estimated as one or two battalions has gone into position northeast of Store, and fired on the Blue front line until dark. Since darkness enemy's artillery has fired intermittently on road junctions northeast of Guldens. At 1:30 AM another group of hostile artillery opened fire on Moritz S. H. from the vicinity of Breashner.
>
> (b) From the cavalry of the right column it was learned that, owing to recent rains the Little Conewago Creek had become so swollen as to be a formidable obstacle and is unfordable from a point due east of Sells Station to the north.
>
> (c) The air service reports of the hostile column moving to the northwest have been amply confirmed by our cavalry, which estimates the strength of the column as an infantry division, to which has been added a reinforced brigade with an extra regiment of artillery. This column is on a single road enroute northwest via Hanover and Centennial. About one-third of the column had effected a crossing at Topper Mill by 9:00 PM, 20 April, when movement ceased. At this time tail of the combatant elements

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of this column was a few miles southeast of Hanover. The enemy is known to be bivouacked along the road from Store to the southeast with some concentrations in the hollow east of Mt. Pleasant S. H.

(d) A telegram has been received from the army commander at Carlisle to effect that the 2d Division had encountered an inferior force on the afternoon of 20 April, north of Spring Grove, defeated it, driven it south, and was now at the outskirts of Spring Grove; also, that the garrison at York Springs was to be strengthened by troops which were scheduled to arrive there early the morning of 22 April.

(e) Red cavalry, estimated at three troops, occupied the woods and ridge from crossroads 601 to road junction 614 (north of F. X. Noel) until 2:30 AM, 21 April, when it was relieved by infantry and machine guns estimated at a battalion or more.

At 2:00 AM, the Commanding General, 1st Division, sent a warning order to both columns directing that they be ready to move in original formation at daylight, 4:30 AM, 21 April.

By 3:00 AM, 21 April, from reports recieved it becomes apparent to the division commander that the Red force has determined to fight its way to the northwest along its original line of march, Centennial—Cedarridge—Guldens.

Weather, 21 April: Low lying clouds with fog and mist in valleys.

Required:

First: The decision of the Commanding General, 1st Division.

Second: The formal field orders issued by the Commanding General, 1st Division.

Third: Reasons, given briefly, for the action taken.

An Approved Solution

First Requirement:

The decision of the Commanding General, 1st Division:

To attack the enemy at as early a moment as possible, and drive him back across the Little Conewago before he can get the bulk of his strength west of the same.

Second Requirement:

The formal field orders issued by the Commanding General, 1st Division:

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1st Div,
GULDENS,
21 April, 3:30 AM.

FIELD ORDERS }
No 12 }

Maps: Gettysburg-Antietam Map, 1:21120.

1. Our information indicates that the enemy, consisting of a reinforced infantry division, is enroute northwest via the HANOVER—TOPPER MILL—STORE road. About one-third of his force had crossed the LITTLE CONEWAGO at TOPPER MILL by 9:00 PM, 20 April, when movement ceased. The road from STORE southeast to beyond HANOVER is filled with his troops with concentrations in the hollow east of MT. PLEASANT S. H. He holds an advanced line with infantry and machine guns generally as follows: Road junction 900 yards northeast of RJ 593—woods east of RJ 593—woods southeast of RJ 587—hill 612—RJ 607—woods at RJ 614—CR 601. He has artillery in position in the vicinity of BREASHNER and some northeast of STORE.

   Our 2d Div defeated a Red force north of SPRING GROVE, drove it to the south yesterday afternoon, and is now at the outskirts of SPRING GROVE.

   Our left and right columns hold the line: woods 800 yards north of RJ 593—houses 300 yards northwest of RJ 593—woods 1000 yards southwest of 593—woods 1000 yards northeast of GEISLER—woods east of GEISLER—woods west of A. SMITH—woods north of HAGERMAN—M. FINK.

2. (a) We attack with the view of driving the enemy back across the LITTLE CONEWAGO before he can get the bulk of his force west thereof.
   (b) Time of attack: 7:00 AM.
   (c) Direction of attack: BRUSHTOWN.
   Line of departure: GALLAGHER—A. SMITH—RJ 560—and present front line.
   (e) Boundary between brigades: RJ 560—farm house at (361.7—749.5)—farm road junction 100 yards southwest of BREASHNER—SMITH'S STORE—GEISELMAN, all to 2d Brig.
   (f) March conditions cease at 4:00 AM.

3. (a) The 1st LA will support the 1st Brig. The 2d LA will support the 2d Brig. The 3d HvA will support both brigades. Artillery regiments will be in position in the general vicinity of CR 562 (358.0—751.6)—SALEM CH.—MORITZ S. H. by 6:30 AM and will cover the infantry advance to the line of departure. Harassing fire will be delivered on CR 601 (northwest of F. X. NOEL), woods at RJ 614, RJ 607, hill 612, woods southeast of RJ 587, woods east of RJ 593, road junction 900 yards northeast of RJ 593, road from STORE to the southeast via RJ 582 and CENTENNIAL, and the hollow east of MT. PLEASANT S. H. (see FA Annex.)
   (b) The 1st Brig (less 1 bn) will attack on the front, woods 800 yards north of RJ 593—RJ 581, and secure the MARYSVILLE ridge without delay.
   Direction of attack: 123 degrees, true bearing.
   (c) The 2d Brig (less 1 bn) will gain the MARYSVILLE ridge without delay, assisting the right of the 1st Brig to secure the ridge just west of the line BREASHNER—STORE. Its right will cover the HANOVER ROAD.
   Direction of attack: 123 degrees, true bearing.
   (d) One battalion of the 1st Brig and one battalion of the 2d Brig will be sent to the hollow northwest of R. F. WEAVER and crossroads at M. FINK respectively as elements of the division

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reserve. The CG 2d Brig will designate a lieutenant colonel to command these organizations. The 1st MG Bn will proceed to GRANITE HILL STATION by the most expeditious route so as not to interfere with marching troops and there await further orders.

(e) The 1st Cav (less 1st Sq), reinforced by the mtd det 1st Engrs, will move at once to the vicinity of FELTY S. H. and will delay, by all possible means, any hostile crossing of the LITTLE CONEWAGO south of TOPPER MILL. Reconnaissance east and southeast to cover our right. The 1st Sq 1st Cav will cover our left and prevent any hostile crossing of the LITTLE CONEWAGO north of AIKENRODE, inclusive.

(f) One company 1st Engrs will be sent to report for duty to the CG 1st FA Brig at GRANITE HILL STATION. Mtd det to report to CO 1st Cav at BONNEAUVILLE at once. (See Administrative Orders No —.)

(g) The 1st F Sig Bn, in addition to the usual communications, will maintain wire communication from the division command post at GRANITE HILL to the divisional reserve at M. FINK, and also to the 1st MG Bn at GRANITE HILL STA.

4. (a) Station for slightly wounded: HUNTERSTOWN.

(b) Field trains of the left column will be assembled and parked off the road between RJ 546 and RJ 537 (northeast of HUNTERSTOWN).

Field trains of the right column will be assembled and parked in the hollow just southwest of hills 603 and 601 (southeast of HUNTERSTOWN). (See Administrative Orders No —.)

5. (a) Plan of signal communications: no change.

(b) Division axis of signal communications: GRANITE HILL—CR 562—RJ 566—RJ 614—ridge 500 yards due west of BREASHNER. Forward communicating center, RJ 566.

Axis 1st Brig: hill 562 (southeast of GULDENS)—CEDARRIDGE—RJ 606—STORE.

Axis 2d Brig: GEISLER—F. X. NOEL—SQUARE CORNER —CR 601.

(c) Command posts:

Division: GRANITE HILL after 6:45 AM.
1st FA Brig: GRANITE HILL.
1st Brig: hill 562 (southeast of GULDENS).
2d Brig: GEISLER.
Divisional reserve: M. FINK.

A,
Maj Gen.

Distribution:

Comdg Gen
C of S
G1
G2
G3
Div Adj
Div QM
Div Sig O
Div Surg
CG 1st Brig
CG 2d Brig
1st FA Brig
CO 1st MG Bn
1st F Sig Bn
1st Engrs
Tns
1st Cav
1st Sq 1st Cav
CG Army

Third Requirement:

Reasons for action taken.

At first glance the advisability of attacking under the circumstances may seem subject to question, for the original

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mission of the division, that of co-operating with the 2d Division, no longer exists, since that division has practically arrived at Spring Grove without assistance. However, the situation presented is one in which the enemy has gotten himself into a predicament. He has a stronger force, but only one-third of it is within striking distance of the Blues and the remainder is beyond an unfordable stream. The decision, therefore, would be to attack that portion now west of the Little Conewago and drive it back across the stream.

The time of attack is placed at 7:00 AM. By this time the division can be deployed and ready to make the advance. The attack might have been placed at an earlier hour, but this would involve the risk of having some organizations go into the conflict without a complete understanding of what is demanded of them.

The line of departure is a well defined line on which parts of the command are already deployed, and which the assault units of the right column can reach by the time given.

The boundary between brigades and the direction of attack are so selected as to avoid any shifting of troops already in position, and to cause the attack to be made in such a direction as to result in taking the Marysville Ridge, which will control the crossing at Brushtown and Topper Mill.

The right of the 2d Brigade is directed to cover the Hanover road. The purpose of this is to limit this brigade to a reasonable frontage and to make it plain to the brigade commander that he is to handle any Red troops that may be found advancing on or towards that road, a situation that he is bound to encounter. This brigade is also ordered to assist the 1st Brigade to secure the ridge west of the line Breashner—Store. The brunt of the fighting will be done at first by the 1st Brigade, as the most of the hostile deployed line is opposite it, and it will have to be extended on rather a wide front. For this reason some precaution such as that given in paragraph 3 (c) is necessary.

The artillery is ordered as far forward as practicable. The 3d Heavy Artillery is placed with the light artillery so as to be able to reach well forward towards the crossings

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of the Little Conewago. The absolute placing of elements of this arm is left to the brigade commander, as it should be, and only a general disposition is ordered. The reasons for the dispositions of the remaining elements of the division are obvious from the order and the problem.

(C-1) ATTACK AGAINST A PREPARED POSITION

MAJOR R. MCCLEAVE, Infantry, General Situation and Discussion.
MAJOR L. J. MCNAIR, Field Artillery, Artillery.
CAPTAIN O. S. ALBRIGHT, Signal Communications.
LIEUTENANT COLONEL M. A. W. SHOCKLEY, Sanitary Service.

EDITOR'S NOTE:—Four officers have collaborated on the discussion of an attack against a prepared position, which opens with the presentation of a concrete situation. In the discussions that follow, the tactical principles and decisions involved are discussed and illustrated.

General Situation:

Maps: General Map, Gettysburg-Antietam, 1″=10 miles.
Gettysburg-Antietam Map, 1:21120, Gettysburg, Bonneauville, Taneytown and Kingsdale Sheets.

A Blue army with three corps in the advance and two in reserve, invading Pennsylvania and Maryland from the west, encounters strong Red forces in the mountain passes west of Gettysburg. The main Red army is known to be mobilizing east of the Susquehanna. The Red force retired before the Blue advance and on July 1, 1919, stands behind the Little Conewago, from Brushtown to the Big Conewago.

The Blue army, 1st Corps, on the right, reaches a north and south line through Gettysburg on July 3. The 1st Division, on the right of the 1st Corps, bivouacs just west of Harney. Extremely cloudy weather has prevented all air reconnaissance since July 1.

The Blue eastward movement continues on July 4, two corps directed at the front Brushtown—Big Conewago, one corps and the army cavalry moving north of the Big Conewago to turn the position.

Special Situation (Blue):

1. The 1st Division, with the 1st Squadron, 1st Cavalry, attached, moves with a main column via Harney directly on Kingsdale as right flank guard of the corps. It has orders to push strongly toward Ebbvale, and attack vigor-

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ously any hostile detachments encountered. A secondary column, to decrease depth of formation, moves via Barlow—Trustle—Shoemaker road on Littlestown.

March dispositions:

MAIN COLUMN

Advance guard:
Support:
1st Battalion, 1st Infantry.
1st Machine Gun Company.
Company A, 1st Engineers.

Reserve:
1st Infantry (less 1 battalion).
1st Battalion, 1st Light Artillery.
4th Ambulance Company.

Between advance guard and main body:
1st Field Signal Battalion (less detachments).

Main Body:
2d Infantry (less 1 battalion).
1st Light Artillery (less 1 battalion).
3d Battalion, 2d Infantry.
3d Infantry.
4th Infantry (less 1 battalion).
2d Light Artillery.
3d Battalion, 4th Infantry.
1st Machine Gun Battalion.

LEFT COLUMN

1st Engineers.
3d Heavy Artillery.
Trains.

2. As General A moves out from Harney at tne head of the reserve of the advance guard, he receives the following messages from the support commander:

"The 1st Squadron, 1st Cavalry, encountered enemy in position north and south of KINGSDALE. Driven back by infantry and machine gun fire from hills 664—643—581.

"Patrols have reached LEFEVRE by moving north of LITTLESTOWN and PLEASANT GROVE S. H. by the road southeast of PINEY CREEK. All attempts to move due east from PINEY CREEK driven back. Squadron now in observation from woods and orchard at PALMER. Hostile artillery is searching the road as far west as ALLOWAY CREEK. I have deployed support north and south of road in approach formation and will move due east against KINGSDALE. Cavalry directed to move northeast along ALLOWAY CREEK to ASH GROVE S. H. and await orders."

3. General A directs the advance guard commander to support this movement strongly with his advance guard, attack and develop the situation north and south of Kingsdale. He informs him that he will be supported by the

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division if necessary, that messages will be sent to Koon's, and that he, General A, proposes to attack and carry the position, but desires more definite information of the situation.

4. At 11:00 AM, the division commander receives the following message from the advance guard commander:

> "My attack has carried the hostile front lines, apparently an outpost position. My troops hold hills 664 (near LITTLESTOWN), 581 and 664 (near BLACK'S S. H.). I have had personal observation from hill 664 (near LITTLESTOWN). The enemy's position is apparently organized in depth. Line of hills 647—623—621—601—nose west of GEORGETOWN, and ridge between road junctions 602 and 609, immediately in front, is apparently held as a line of covering machine gun nests. Immediately east on the line PUMP STATION ridge—hill 607 and GEORGETOWN heights strong infantry trenches are visible, and a third line of intrenchments occupies the heights just west of MT. PLEASANT S. H. There are no entrenchments north of LITTLESTOWN or south of the BLACK'S S. H.—crossroads 669 road. The ground features correspond closely to the map. My force is insufficient to carry the position and I will continue the fire fight from my present position waiting for further orders. My force disposed as follows: two battalions hold line of hills 664—643—581, one battalion in reserve west of OAK GROVE S. H. My artillery battalion is deployed and firing from near hill 606. I recommend a general attack enveloping hostile right to drive enemy away from his main army. No information of hostile artillery, which seems to be firing from rear positions. Every attempt to advance from present position has been stopped by a clearly defined barrage fire. In spite of extent of position, I believe not more than a reinforced brigade occupies the position."

Required:

The formal orders issued by General A.

Discussion

The situation is that of an attack upon a prepared position by a division acting alone. It will be noted that it is not an attack from one stabilized position upon another, but that the position is encountered while on the march. The action therefore partakes of the general character of a meeting engagement, with the enemy on the defensive.

The principal characteristics of such an engagement are set forth in the GENERAL DISCUSSION OF THE OFFENSIVE (*ante*) as:

1. Reconnaissance and covering detachments.
2. Development.
3. Approach march.
4. Deployment.

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5. Advance to first firing positions.

NOTE:— The artillery preparation proceeds simultaneously with the development and advance to the first firing positions.

6. The fire attack (fire and movement).
7. Assault.
8. Pursuit.

The general plan of action must have all the above in mind in their proper sequence, but, aside from planning the entire action, the division commander will be directly concerned only with the first two items. After the development of the division, that is the extension for action, the other six items devolve upon lower commanders, in accordance with the general plan.

In the plan, one principle, that of local victory, outweighs all other considerations, including strategical advantages. That plan that gives the greatest tactical advantages and assurance of success is to be adopted.

With reference to reconnaissance and covering detachments, it is necessary to remember that the bulk of the troops should be held out of action until the situation is sufficiently cleared up to develop a definite plan of action.

The estimate of the situation will, then, follow the above general lines.

ESTIMATE OF THE SITUATION

(a) *Enemy*: Strength unknown. This must be cleared up to a certain extent before putting in the bulk of the troops.

The limits of the position have been defined by the normal action of the cavalry in patrolling to find the flanks. The depth and dispositions are at first entirely unknown, and the action in ordering aggressive action by the advance guard while holding the bulk of the troops in readiness is normal. If the enemy is weak, the advance guard action clears the road and prevents premature deployment; if he is strong, it brings essential information as to the enemy's strength and dispositions and often gains important assault positions. If the enemy is in strength, the advance guard should not seek a decision without support from the division in rear. If the cavalry is seriously engaged, the advance guard will usually relieve it and permit it to con-

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centrate on a flank. Upon the information that flows back from these reconnoitering and covering bodies, which fight when that is necessary for gaining information, the general plan of action will be based.

It will be noted that two general courses of action lie open to General A; one to clear up the situation, partially at least, before formulating a well thought out plan for a definite and powerful attack; the other to disregard the hostile strength and position, seize upon the best lines of advance and control that lead against the enemy's position, deploy and guide along them, and deliver a powerful attack along the most direct lines. In this problem the Harney—Kingsdale road is the control and guiding line, and a deployment north and south thereof, and an attack against the front of the position would fulfill these conditions.

With time as a decisive element, the last described method is often both necessary and advantageous, but for a skillful attack with overpowering force brought to bear on a decisive point and with full advantage taken of the ground, the first method is usually the better one. The last method follows the line of least mental resistance and is easier, but fails usually of the results that are attained by a complete plan, made in accordance with all of the information that can be obtained by covering detachments.

The hostile position is only a few miles from the main Red army. Two points arise:

First—The possibility that Red reinforcements may arrive. This is largely negatived by the general situation.

Second—The probability of driving the Reds back on their main force. Other considerations being equal, the northern flank should be attacked. However, with the tactical advantages on the southern flank, the attack should be massed there. The reasons for this are, first, for the sake of local victory, and second, because the Reds may well be pressed for maneuvering room by such action. The principle is clear that the commander should profit by local tactical advantages rather than be swayed to a disadvantageous tactical situation through strategical considerations. The extent of the position is considerable, but over-extension is an ordinary ruse in defensive operations.

(b) *Our Own Forces*: General A holds in abeyance any weighing of proportionate strength until his reports come in. His corps is within supporting distance, but has a distinct mission. No help is to be requested until necessary. He must, however, keep well in mind the position

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of his own troops, and while awaiting information should get all of them across the Conewago into a good position for development.

(c) *Courses open to both sides:*

Red: Only two courses appear logical.

First—To fight stubbornly in the prepared position.

Second—To retreat promptly to the northeast without serious resistance.

Neither affects General A's intentions to defeat the Reds if they fight. If they retire, his mission is accomplished without combat.

Blue: Considering the main attack, three courses appear open.

First—The head-on frontal attack along the Harney—Kingsdale road with the advantage of speed and the disadvantage of frontal attack.

Second—The envelopment of the northern flank, giving strategic advantage and recommended by the advance guard commander. The most difficult obstacle that can be interposed by a force on the defensive is a clear field of fire. The ground south of Tollgate and northwest of Littlestown is exceptionally open. If crops are standing, control will be difficult. The town of Littlestown is a strong point and will be a difficult obstacle if set on fire. The tactical disadvantage of attack against this flank outweighs the strategic advantage.

Third—The envelopment of the southern flank. The terrain here is more advantageous than toward Littlestown. The rolling country gives covered approaches and firing positions. Only a small fraction of the defense can meet this attack if General A combines a holding attack with it. He examines the approaches and finds sufficient roads and covered approaches, and an excellent control road for the right flank, the 520—665—669 road. The advantage of these general topographical lines in control can hardly be overestimated.

In view of the information obtained by the advance guard action, General A comes to a definite decision to attack, enveloping the southern flank, with a secondary holding attack along the front. The secondary attack can seldom be omitted as it is essential to prevent hostile concentration in front of the main attack.

The detailed decision will be somewhat as follows:

To envelop enemy's left.

Objective: Littlestown—689—712 road (in rear of hostile position).

Line of departure: hill 642—hill 662—crossroads 615—crossroads 559—ravine south to Piney Creek (stream)—ravine running southeast to near road junction 665.

Time of attack: 4:00 PM.

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Boundary between brigades: road junction 573—road junction 602—ravine south of Georgetown—south and east edge of woods ½ mile south of Mt. Pleasant School—road junction 689.
Formation: 2d Brigade on right, column of regiments, each regiment in column of battalions. Right resting on Black S. H.—hill 711 road.
1st Brigade—in line of regiments
left regiment, 2 battalions in line
1 in reserve
right regiment, 3 battalions in line.
Cavalry: In readiness at Ash Grove S. H.
Reserve: Engineer regiment and division machine gun battalion in orchard west of Shoemaker.
Artillery: 1st Light Artillery supporting 1st Brigade near hill 606.
2d Light Artillery supporting 2d Brigade south of hill 572.
3d Heavy Artillery supporting attack from vicinity of hill 606.
Trains in covered positions between Barlow and Trustle.
(Certain details such as the axes of signal communication, command posts, station for slightly wounded, connecting groups, etc., will be incorporated in the order when it is formulated.)

The development of the division next interests General A. The roads in the back area for the extension into several columns, the hills, ridges and woods giving cover from fire, covered approaches, the existence of formidable obstacles, all receive attention. He finds an unusually favorable situation with respect to all of these points.

His planning next considers the formation. A considerable latitude is common in this respect. Many formations are usually allowable. According to his decision, overpowering force must be brought against the southern flank, the flank here referring to the rear hostile lines and not the front line. His main attack will then be directed against the hills and ridges south of Mt. Pleasant School, between the Georgetown—629 road and the Blacks S. H.—669—712 road. The direction of this attack against the two hills, 687 and 711, will carry out this idea. He decides to make this main attack with the 2d Brigade in column of regiments in column of battalions, a narrow frontage with great depth. With the control road on the right flank, darkness need not stop this attack. On the other hand, many of the troops in this column of attack may not become engaged at all and will be available as reserves to continue pursuit, establish outposts, and for other similar duty.

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The 1st Brigade he proposes to use for the holding attack on a very wide front. The principle that the artillery fire should be employed to cover the deployment and advance to the first firing positions is laid down in the General Discussion of the Offensive. The artillery should then gain its positions as soon as possible, preferably during the deployment of the main body. The advice of the artillery commander normally would be obtained. Artillery positions are numerous. Many would do as well as those that General A selects, which place light artillery regiments near hills 606 and 572, and the heavy artillery near hill 606. He will make the customary allotment of a light artillery regiment to the direct support of each infantry brigade. Instead of supporting the general front of the attack with the heavy artillery it seems better here to use it on the front of the main attack. A barrage may be indicated after consultation with the artillery commander.

The question of reserves will be met by holding the engineers and division machine gun battalion in rear of the left flank, and keeping the rear battalion of the main attack at the disposal of the division commander. The cavalry he will hold covering the left flank, prepared for pursuit; the air service for observation and fire direction as far as air conditions permit. Trains he will keep back out of action.

General A thus outlines his plan of attack, but this is not sufficient in open warfare situations. He must include also the different movements of the development for action, based on the plan of battle. The minor details of troop leading, the approach marches, the deployments and gradual unfolding of the combat, pertain to lower commanders.

In considering the development, he keeps the position of his troops in mind. The advance guard is engaged and out of the way. A general position in readiness will be normal, based on the reconstitution of tactical units. It might be expected that the leading troops of the main body, the 1st and 2d Battalions, 2d Infantry, the 2d Battalion, 1st Light Artillery, and the 3d Battalion, 2d Infantry, would be massed just east of Koon's with a view to re-forming the 1st Brigade and 1st Light Artillery as fighting units.

This reconstitution of broken tactical units is not often touched upon and seems important, as the chain of command

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must be maintained. The 2d Brigade and 2d Light Artillery will be considered as held just east of Harney in massed formation, prepared to move northeast or southeast, as may be required in the final plan. This has the advantage of clearly outlining at the start the main infantry combat units and the supporting artillery. The field order gives the routes decided upon for the development. The 547—540—535 road runs north and south halfway between Harney and Kingsdale, limiting the stage of development. Beyond it the approach marches, deployment, and assault will occur under subordinate command through the stage of pursuit by fire. The formal pursuit will be by divisional command, using formed units.

General A's Formal Order

1st Div,
Koons, Md.,
4 July 19, 11:30 AM.

Field Orders
No 20

Maps: Gettysburg-Antietam Map, 1:21120, Gettysburg, Bonneauville, Taneytown and Kingsdale sheets.

1. The enemy, estimated as a reinforced brigade, occupies a fortified position just south of Littlestown between the Littlestown—Mt. Pleasant S. H. road and the Blacks S. H.—711—712—road. The position consists of three lines.
   - 1st Line: hills 647—623—621—601—RJ 557—ridge southeast of RJ 602.
   - 2d Line: Pump Station ridge—607 ridge—Georgetown ridge—hill 687.
   - 3d Line: Tollgate ridge just southeast of RJ 575—crest ½ mile southwest of Mt. Pleasant S. H.—nose northwest of and including hill 711. Our advance guard has driven in his outposts and holds the line of hills 664—643—581.

2. This division will attack enveloping the hostile left (southern) flank.
   - Line of departure: hill 662—CR 615—RJ 596—CR 559—ravine south of Piney Creek (stream)—ravine just east of hill 602. Assault echelons will cross the above line at 4:00 PM.
   - Boundary between brigades: RJ 573—RJ 602—ravine south of Georgetown—the Georgetown 629 road.

3. (a) The 1st Brig, rear elements under Col A moving via the Harney—Kingsdale road, will deploy north and south of this road and attack due east (true azimuth).
   Formation: left regt, 2 bns in line, 1 bn in reserve; right regt 3 bns in line.
   The 2d Brig, moving via Angel—Lambert—535 will attack with its right resting on the Black's S. H.—669—711—712 road.
   Formation: column of regiments in column of battalions.

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(b) The 1st FA Brig will support the attack.
The 1st LA will support 2d Brig from near hill 606.
The 2d LA will support 2d Brig from near hill 572.
The 3d HvA from a position northeast of hill 606.
Routes discretionary. Artillery will have priority on roads.
Light registration and harassing fire will be used till 3:45 PM, when maximum effect will be sought. A barrage by the 2d LA and 3d HvA at the rate of 100 yards in 3 minutes will precede the attack of the 2d Brig, under the direction of the CG 1st FA Brig. Initial line of barrage—ravine east of hill 664 near BLACK'S S. H.

(c) The 1st Engrs and 1st MG Bn, constituting the divisional reserve, will occupy a covered position near SHOEMAKER'S. The rear battalion of the 2d Brig will follow the attack at disposal of the division commander.

(d) The 1st Sq 1st Cav will occupy a covered position near ASH GROVE S. H. covering the left flank, prepared for prompt movement.

(e) The 1st Obsn Sq, from its present landing field near HARNEY, will begin observation at once by low flying planes. Hourly reports on the hour. It will assist in artillery fire direction and control. Three planes will be assigned to division headquarters for battle command purposes.

(x) Brigade commanders are charged with flank protection. A mixed connecting group of 1 plat Inf and MG section from each brigade will move along the boundary between the brigades.

4. (a) Trains will park in covered positions west of TRUSTLE'S.
(b) Station for slightly wounded: RJ 553.

5. Plan of signal communication: no change.
Divisional axis: HARNEY—KINGSDALE road.
Brigade axis: 1st Brig: same as division.
2d Brig: hill 586—RJ 587—hill 664—CR 669—hill 711.
Command posts: Division: KOON.
1st Brig: farm ½ mile northeast of CR 547.
2d Brig: orchard between hills 586 and 584.

By command of Maj Gen A:

Y,
C of S.

Distribution:
CG's all brigs
CO 1st Engrs
1st MG Bn
1st Sq 1st Cav
1st Obsn Sq
Tns
1st F Sig Bn
Div Staff, Corps, War diary, file, spare.

Artillery

The action of the 1st Field Artillery Brigade during the attack of July 4th will now be taken up. It will be remembered that when contact with the enemy was gained, the 1st Field Artillery Brigade was disposed as follows:

1st Light Artillery: 1st Battalion in position and firing from hill 606. 2d Battalion on the road, following the first two infantry battalions of the main body of the main column, in the vicinity of Koon farm house.

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2d Light Artillery: west of the Monocacy, preparing to march.
3d Heavy Artillery: with the left column, between Trustle and J. Smith farm houses.
Ammunition Train: with the left column, probably in the vicinity of Barlow.

WARNING ORDER

The first concern of General E, commanding the 1st Field Artillery Brigade, after learning of General A's decision to attack, is to move his command to position without loss of time. The division order for the attack is issued at 11:30 AM. It calls for the details of a barrage to support the attack of the 2d Brigade, which should be included in General E's order. It is obviously inadvisable for General E to hold up the movement of his regiments to position until his order is issued; it is better to issue a warning order covering only the movement to position. He can issue such an order immediately upon receipt of the division order, or even before if he is in close touch with division headquarters, which will ordinarily be the case. Accordingly, at 11:45 AM General E sends out the following order by courier to the commanders of all artillery regiments and the ammunition train:

"Enemy encountered in position north and south of KINGSDALE. Division attacks at 4:00 PM. Units move at once to positions in readiness as follows: 1st LA, 2d Bn to join 1st Bn at hill 606; 2d LA, via CR 547 to east of hill 572; 3d HvA, via RJ 544 to between hill 606 and RJ 567; Am Tn, to PALMER FARM HOUSE. Artillery has priority on roads. Expedite movement. Order follows.

E.
Brig Gen."

ARTILLERY PLAN

General E's order corresponds to the artillery plan in a situation where time is available for prescribing all details at the time of issuing the division order. In the present situation, however, the artillery plan is prepared after the issue of the division order. The latter merely prescribes certain controlling features, such as the adjustment and harassing fire prior to the attack, the preparation, and the barrage supporting the 2d Brigade. The details are left to the artillery commander. He will prepare his order in co-operation with G3 of the division, so that, when issued, it will

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meet with the approval of the division commander and be in complete accord with the plan of attack.

The situation presents certain features that exemplify principles worthy of note.

The front of the 1st Brigade, which makes the holding attack, is of such extent that a barrage is out of the question with the artillery available. The artillery support in this case must be confined to successive concentrations on the visible or known elements of the enemy's defensive position.

On the other hand, the front of the 2d Brigade, which makes the main attack, is small and the attack is formed in great depth. Every effort must be made to insure the success of this attack, which calls for heavy artillery support. Without this support, the attack, even though possibly successful, would probably be accompanied by heavy losses to the infantry.

At the close of the World War, opinion in our service was divided as to the advisability of including heavy howitzers in our division artillery, based largely on questions of mobility, ammunition supply, and their presence in the corps artillery. In this situation, without heavy howitzers in the division, the attack would necessarily be made without them and with substantially greater difficulty.

The dispositions of the light regiments are made for frontal employment, whereas those of the heavy regiments are made so as to enfilade the spurs over which the main attack is to be delivered. The enfilading disposition is very advantageous for concentrations, but it would present difficulties for a unit such as the 2d Light Artillery, which is charged with firing a rolling barrage.

The position of the 1st Light Artillery on hill 606 is controlled by the fact that one battalion of the regiment was already in position there incident to its advance guard functions, and it is very desirable to have the regiment together. Moreover, the position is an excellent one for a regiment as well as for a battalion.

All positions are well forward, this being possible because of the purely defensive attitude of the enemy. Had the terrain been more suitable the 2d Light Artillery could well have been placed farther south, so that it could have

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fired its barrage without changing deflection. A consideration in the selection of the position for the 3d Heavy Artillery was the fact that it could be reached without crossing or using the axial road of the division.

The heavy artillery is utilized during the attack exclusively for firing on the hostile infantry positions. This is to be considered as its normal and primary mission; although in this case, owing to the absence of corps artillery, counter-battery missions may develop. The use of this weapon in Europe was often faulty in that it was devoted to harassing or interdicting rear areas and roads with no definite knowledge that there was a target for its fire, and without observation. Such missions are in general far less important factors in the combat than the hostile infantry.

Provision is made for the heavy artillery to fire on the hostile artillery in case its location is discovered. Since aerial observation is not possible, it is hardly to be expected that any hostile batteries will be accurately located, at least in the first stage of the attack. The provision for counter-battery firing is merely a precautionary measure, and does not interfere with the use of all artillery against the hostile infantry. The losses caused our infantry by the hostile artillery are to be regretted but must be accepted as unavoidable, unless the hostile artillery position is revealed by indiscretions or faulty dispositions. Suitable formations by our infantry will minimize the losses from artillery fire.

In formulating the plan for artillery fire, the ammunition supply imposes restrictions. In this situation it has seemed prudent to expend no more than about three-fourths of the total supply in the attack, holding a small reserve for subsequent action or to handle serious counter-attacks. The amount to be expended *before* the attack and *during* the attack must be decided upon. If the ammunition expenditure were unrestricted before the attack, the consumption might be so large as seriously to impair the support during the attack. It is considered imperative to provide for the maximum support during the serious phase of the attack. The fire before the attack is therefore confined to "light harassing," and the preparation is made very short, 15

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minutes, although it is in reality longer since the infantry moves a considerable distance behind the deployed advance guard.

The artillery fire prior to the attack is so distributed as not to reveal the direction of the main attack, for in this respect the attack can well embody the element of surprise.

The barrage for the support of the 2d Brigade was decided upon to make progress of the attack both rapid and certain. There is sufficient artillery to make it reasonably dense. The rate ordered for the barrage is more rapid than usual; 100 yards in 4 minutes would provide a denser fire and lessen the possibility of the barrage leaving the infantry. The rate of 100 yards in 3 minutes is considered preferable in this case for the following reasons: the hour of attack is late and rapid progress is necessary; more surprise is secured; the ammunition consumption for the entire attack is less; the depth of penetration is small; there is little likelihood of fire from the right flank, and the left is well protected.

Based upon the foregoing, the plan of artillery support is briefly as follows: upon arriving in position batteries will open fire at once for adjustment and harassing upon designated points of the hostile position; 15 minutes before the attack, a heavy fire will be delivered on the forward hostile positions; for the holding attack, this fire will rest until signal for lifting it to positions in rear; for the main attack, the fire will rest until the infantry approaches the initial barrage line. For the main attack, when the infantry reaches the barrage as initially placed, the barrage will advance at a uniform rate to include the enemy's third position. The barrage will be reinforced by the entire heavy regiment, two battalions placing concentrations just in advance of the barrage and one battalion firing on the north bank of the ravine on the left flank of the main attack. The northern half of the barrage will jump the low ground north of crossroads 669 and wait for the southern half while resting on the positions east of this low ground. Two light battalions will be advanced immediately upon the capture of the last prepared position.

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ORDER

The order issued by General E would be as follows:

1st FA Brig,
KOON FARM HOUSE,
4 July 19, 12:30 PM.

FIELD ORDERS }
No — }

Maps: Gettysburg-Antietam Map, 1:21120, Taneytown and Kingsdale sheets.

1. (a) The enemy estimated as a reinforced brigade occupies a fortified position just south of LITTLESTOWN between the LITTLESTOWN—MT. PLEASANT S. H. road and the BLACK'S S. H.—711—712 road. The position consists of three lines:
   1st line: hills 647—623—621—601—RJ 557—ridge southeast of RJ 602.
   2d line: PUMP STATION ridge—607 ridge—GEORGETOWN ridge—hill 687.
   3d line: TOLLGATE ridge just southeast of RJ 575—crest ½ mile southwest of MT. PLEASANT S. H.—hill 711 and nose to north.

   (b) Our advance guard has driven in his outposts and holds the line of hills 664 (west of hill 623)—643—581.
   The hostile artillery has not been located.

   (c) The 1st Div attacks enveloping the hostile left (southern) flank.
   Line of departure: hill 662—CR 615—RJ 596—CR 559—ravine south of PINEY CREEK (stream)—ravine just east of hill 602. Assault echelons will cross this line at 4:00 PM.
   Boundaries: 1st (northern) Brig: southern RJ 573—RJ 602—ravine south of GEORGETOWN—GEORGETOWN—629 road.
   2d (southern) Brig: northern, same as south boundary of 1st Brig; southern, BLACK'S S. H.—609—711—712 road.

2. This brigade will cover the deployment of the 1st Div by light harassing fire, and will support its attack by a preparation and covering fire.

3. (a) The 1st LA will support the 1st Brig from a position behind the ridge of hill 606.
   Hostile positions on hills 647 (west), 623, 621, 601, and 607 will be harassed.
   The preparation and covering fire will be placed on hills 647 (west), 623, 621, and 601. This fire will be lifted on signal from the infantry, and placed on hills 647 (PUMP STATION) and 607. It will again be lifted on signal from the infantry to the hostile third positions in the brigade sector. Upon capture of these positions, fire will cease except on call from the infantry or upon visible hostile forces.

   (b) The 2d LA will support the 2d Brig from a covered position east of hill 572.
   Hostile positions between RJ 602 and RJ 669 and on hill 687 will be harassed.
   The preparation will be placed on the hostile positions between RJ 602 and RJ 669 and to the west.
   The attack will be covered by a rolling barrage with shell starting in the ravine east of hill 664 (BLACK'S S. H.) at 4:20 PM, and including the hostile positions north of hill 711.

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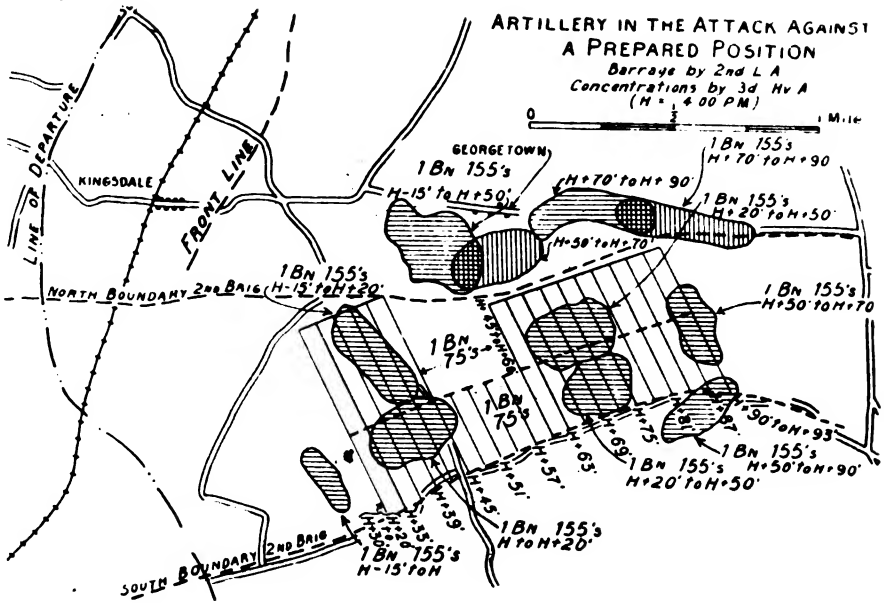
Chapter V (C-1)


ARTILLERY IN THE ATTACK AGAINST
A PREPARED POSITION
Barrage by 2nd L A
Concentrations by 3d Hv A
(H = 4.00 PM)
0
1/2
1 Mile
LINE OF DEPARTURE
KINGSDALE
FRONT LINE
GEORGETOWN
1 Bn 155's
H-15' to H+50'
1 Bn 155's
H+70' to H+90'
1 Bn 155's
H+20' to H+50'
H+50' to H+70'
NORTH BOUNDARY 2nd Brig
1 Bn 155's
H-15' to H+20'
1 Bn 155's
H+50' to H+70
1 Bn 75's
1 Bn 75's
H+90' to H+93'
1 Bn 155's
H+20' to H+50'
1 Bn 155's
H+50' to H+90'
1 Bn 155's
H to H+20'
SOUTH BOUNDARY 2nd Brig
1 Bn 155's
H-15' to H

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After the barrage is completed, fire will be delivered only upon call from the infantry or upon visible hostile forces.

(c) The 3d HvA will support the attack from a covered position between hill 606 and RJ 567.

Harassing fire will be delivered on the hostile positions about GEORGETOWN and on the PUMP STATION ridge; also on the roads north and west of RJ 629, the woods 1000 yards northeast of hill 687, the ravine between hill 687 and RJ 602, and the ravine extending northeast from RJ 557.

The preparation and covering fire by successive concentrations will be placed as shown on the attached tracing to support the attack of the 2d Brig.

One battalion will be prepared to shift its fire to the hostile artillery should the latter be located.

(x) (1) As soon as batteries are in position, fire will be adjusted and harassing fire delivered until 3:45 PM. Ammunition allowance: light guns, 400 rounds per battery; howitzers. 75 rounds per battery.

(2) At 3:45 PM, a preparation will be delivered, followed continuously by the covering fire during the attack. Rate of fire: light guns, 8 rounds per battery per minute; howitzers, 4 rounds per battery per minute.

(3) At 5:15 PM, one battalion of the 1st LA will cease firing and advance via KINGSDALE to a position east of GEORGETOWN. Upon completion of the barrage, one battalion of the 2d LA will advance via RJ 573 and RJ 528 to a position between RJ 602 and RJ 669. The rear battalions will be similarly advanced to the same positions when the forward battalions are in position and ready to resume support of the infantry.

The 3d HvA will remain in its initial position until further orders.

4. (a) Station for slightly wounded: RJ 533.
(b) Ammunition distributing station: PALMER FARM HOUSE.

5. (a) The artillery axis of signal communications will be laid along the HARNEY—KINGSDALE road, with a forward communication center between RJ 547 and RJ 566.

(b) Command posts:
Arty Brig: KOON FARM HOUSE.
1st LA: farm house ½ mile east of RJ 547.
2d LA: orchard between hills 586 and 584.
3d HvA: woods 700 yards northeast of RJ 583.

E,
Brig Gen.

Distribution:
CG 1st Div
CG's 1st and 2d Brigs
CO's all Arty Regts
CO Am Tn

Signal Communications

Turning to the signal communications of the 1st Blue Division during the attack it will be recalled that the division is in camp west of Harney on 3 July. It is acting as right flank guard for the corps, with orders to proceed toward Ebbvale and attack any Red forces that may be encountered. General A moves out from Harney on the

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morning of 4 July at the head of the reserve of the advance guard. It is therefore evident that he is not taking along with him his whole division headquarters. He leaves a large part of his staff at Harney (or at his last command post, wherever that was located) until a place for it has been arranged farther forward.

General A is going forward so that he may learn of the developments of the action promptly and so that his decisions may therefore be more quickly formed. There is some danger that he may interfere with the initiative of the advance guard commander, but a discussion of this point is not pertinent at this time.

General A could have remained at Harney, where his headquarters are now established, and have directed the fight from there. He could then later have established his command post at some selected point farther forward on the axis as the fight progressed. It is seen, however, that he decided to leave his headquarters, move out with the advance guard and establish a command post when and where the progress of the action might require. This decision depended upon two equally important factors which are:

First—Which method will better enable him to *arrive* at his decision.

Second—Which method will better enable him to *communicate* his decision to his subordinate commanders.

So far as the results are concerned, either factor is valueless without the other.

Having decided to march with the advance guard, the question now arises as to whom General A will have accompany him and what means of communication he will use from his advanced position in the column to his brigades and separate units. The signal officer has learned to consider division headquarters as divided into a "rear echelon" and a "forward echelon," the latter being further organized so that it can send out an "advanced echelon." This advanced echelon should have a modified organization similar to division headquarters and in such skeletonized form as to serve the division commander under the circumstances as they exist. Under the conditions of this problem the advanced echelon probably consists of the division commander, two

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or three staff officers, a field clerk from the operations section, and the necessary group of signal personnel.

The group of signal personnel consists of an officer in charge of a small message center detail, a radio detail and a telephone detail.

General A expects to move with the reserve of the advance guard until contact with the enemy is gained. Sooner or later it will be necessary for him to halt and establish a command post. Before he does this it may become necessary for him to send a few messages. For this purpose he will need couriers. Radio will not be available since he is on the move. Telephone lines have not been started because, when he left Harney, there was no contact with the enemy and no information as to when such contact might be gained. When the halt is made and the command post established the means of communication will include courier, radio, and as soon as it can be put in, telephone.

The message center detail consists of two men from the record section and ten or twelve mounted couriers. A message center officer may or may not be present. The radio detail consists of four or five men with a radio set. The telephone detail consists of about fifteen men. The message center detail with its couriers and the radio detail follow General A at the head of the reserve; the telephone detail can march at the tail of the reserve. During the night 3-4 July, the 1st Field Signal Battalion, less the detachments that were operating the various communication centers of the division at that time, is in camp west of Harney in close proximity to division headquarters. The division message center, with couriers, radio and probably commercial telephone service, is operating at the division command post. The commercial telephone office at Harney has been taken over by a detail from the signal battalion. During the march on 4 July the battalion, less the detachments that were necessarily left in place and those sent forward with the division advanced echelon, marches between the main body and the advance guard. The axis of signal communication for the division is evidently the Harney—Koon—Kingsdale—Georgetown—Ebbvale road. The signal officer intends to use the following means of communication during the march: couriers, radio when the units are halted

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for 10 minutes or more, supplemented by the commercial telephone system. After contact with the enemy is gained, the usual courier and radio communication will be employed, and the division commander will decide when the field wire will be laid, if at all. The time and manner of laying the field wire will depend upon developments.

The telephone detail with advanced echelon carried about five miles of heavy and three or four miles of light field wire. The remainder of the wire supply is held in the division wire dump, which is kept well forward on the axis.

After General A moves out of Harney at the head of the reserve of the advance guard, he receives information that contact with the enemy has been gained at Kingsdale. He is led to believe that it is a detachment from the main Red force, since Blue cavalry patrols have apparently gotten around both flanks as far as Lefevre and Pleasant Grove S. H. He decides to attack the Red force, but desires further information before he makes his detailed plans. He orders the advance guard to attack and develop the enemy's dispositions. He establishes his command post at Koon. At this time the signal officer is with General A and is informed of the situation and the decisions that have been made. The advanced echelon moves to Koon, and there the signal officer establishes the message center with courier and radio service. The telephone detail, which is in a truck at the tail of the reserve, will not arrive at Koon until 45 minutes after the signal officer unless he sends a courier to order it to pass through the column. In that case, it can arrive at Koon about 15 minutes after the signal officer. The signal officer intends to use the commercial telephone system to the rear from Koon and to establish on the commercial lines a communication center for the division command post. He intends to be ready to push field wire forward along the axis from Koon, if this should become desirable. He, therefore, sends back for the advance telephone detail to come through.

As has been said, during the march to Koon communication has been by courier, radio when halted, and the commercial telephone system by "calling in" from the local offices in passing.

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By noon General A has notified his staff of his detailed plan, and the attack order is being prepared. The 1st Field Signal Battalion has arrived at Koon, has established its headquarters in the vicinity and is ready to begin work on the axis.

The division command post is at Koon.

The division axis for the attack is Koon—Kingsdale—Georgetown—road junction 529—Ebbvale, the same as already given for the march.

The command post of the 1st Brigade is at farm house ½ mile northeast of crossroads 547.

The axis of the 1st Brigade coincides with that of the division and runs thence to farm house 500 yards west of road junction 689 and Mt. Pleasant S. H.

The command post of the 2d Brigade is in the orchard between hills 586 and 584.

The axis of the 2d Brigade is hill 586—road junction 587—hill 664—crossroads 669—hill 711—road junction 629.

In considering the extension of an axis of signal communications for a unit the mission must be considered. If it contemplates a long advance in a given direction, the route of the axis should be selected well into the enemy territory, as in the case of a deep penetration, or as in the case under consideration in which the line of advance of the 1st Blue Division is toward Ebbvale. If, however, the mission is to attack and defeat a hostile force, the direction of advance after the enemy has been defeated will probably depend upon the direction that he takes. Before the pursuit takes place, a certain amount of time is necessary for reorganizing our own forces and the new direction of the axis can then be selected. It is plain that the larger the unit, the greater the amount of time that will be necessary for reorganization and planning the pursuit.

In the movement into the position from which the 1st Blue Division will launch its attack, the 1st Brigade will probably use the Harney—Koon—Kingsdale road, and the 2d Brigade will probably move from Harney over the roads farther to the south. While the brigades are moving into position, their communications are by courier and by radio when halted. The commercial telephone can be used wherever it is available.

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The signal officer is kept in close touch with the situation and the decisions, intentions and orders of General A through the staff conferences. He consults the artillery brigade commander and learns the artillery dispositions. It will be recalled that the artillery brigade is disposed as follows:

Brigade command post: Koon.
1st Light Artillery command post: with command post of 1st Brigade.
2d Light Artillery command post: with command post of 2d Brigade.
3d Heavy Artillery command post: woods 700 yards northeast of road junction 583.
Battalion command posts of 1st Light Artillery: vicinity of hill 606.
Battalion command posts of 2d Light Artillery; vicinity of hill 572.
Battalion command posts of 3d Heavy Artillery: east of hill 606.

With the setting for the "jump-off" position as outlined above, the communications are as follows:

Couriers: Between all units.
Radio: Between all units equipped with radio, each within its own net.
Telephone: The division runs forward two circuits of field wire from Koon to the command post of the 1st Brigade which serves as the first forward communication center on the division axis. One circuit from here to command post of 2d Brigade.

The 1st Brigade runs two circuits of light field wire to the command post of its right regiment, which will probably be on the Kingsdale Road, and from there runs a circuit to the command post of its left regiment.

The 2d Brigade runs two circuits of light field wire to the command post of its leading regiment, which will be approximately on the brigade axis. It runs no telephone line to its rear regiment.

The infantry regiments lay lines of light field wire to their battalions as they become necessary.

The artillery brigade lays two circuits of its own from Koon to its regiments, practically paralleling the division axis. An artillery forward communication center is established at or near the command post of the 1st Brigade, and lines are run from it to the command post of the artillery regiments.

The artillery regiments lay their own lines to their

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battalions, utilizing the forward communication center feature as indicated by circumstances.

The above is the initial form from which the lines of signal communications are built forward as the action progresses. The axes of the brigades approach the division axis as the forward movement continues. Lateral lines from the division axis to the brigades are laid as they become necessary.

Sanitary Service

The activities of the sanitary service will be brought out by assuming and discussing two additional requirements. These are:

First Requirement:

Disposition of sanitary service of the 1st Division for the march of 4 July, 1919, for inclusion in the march order.

Second Requirement:

Disposition of sanitary service of the 1st Division for the action of 4 July, 1919, for inclusion in the field and administrative orders.

Discussion

First Requirement:

In preparing for compliance with the requirements, various details of the army and corps plans of Medical Department evacuation must be considered. Since these will certainly be influenced by the general scheme of supply and evacuation, road system, railway communication, and incidents of the history of operations of the 1st Army, 1st Corps, and 1st Division in the present campaign, the following assumptions or deductions must be considered and will serve as a basis for future decisions:

First, that the railways passing through the South Mountain range have not been damaged greatly by the retiring Reds, and are now, or soon will be available for use.

Second, that the 1st Army is making a methodical advance, and that a normal method of supply and evacuation is being followed.

Third, that the Blue army is operating in unfriendly territory.

Fourth, that the camp of the sanitary train on the night of 3 July was arranged in the usual manner to cover economically the

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forces to the front, to permit of easy evacuation to the rear, and to furnish a practical route for advance with the trains, without unnecessary detour; and that, in addition, conditions for shelter, cover, and local supply were met.

The surgeon, 1st Division, notes the following points in the corps order:

That the boundary between the 1st Division and the 2d Division, on its left, is the line Zora—Fairfield—Lefevre, inclusive.

That Fairfield Station is the 1st and 2d Division railhead for 3 July.

That on the same date Fairfield Station is the evacuation point for the 1st Corps.

That the army has designated two evacuation ambulance companies to cover the 1st Division for evacuation purposes for this day.

And that one mobile surgical unit and two mobile degassing units of the army sanitary column, all of which have reported to him the evening of 1 July, are assigned to temporary duty with the 1st Division.

The surgeon considers the following:

The position of the bivouac of the main body of the 1st Division.

The evacuation point of the corps.

The method of evacuation.

Character, direction and condition of the roads that cover the bivouac of the 1st Division and lead from it to the evacuation point.

The boundary of the 1st Division on the north (as indicating probable direction of tomorrow's march).

The general situation.

The probable effect of weather conditions, particularly of rain, on the roads.

The surgeon decides on the position of the bivouac of the sanitary train, and makes recommendations to G1 for inclusion in the halt order. He recommends that there be included in the halt order for 3 July, the following:

"Sanitary train and attached army units, less 4th Ambulance Company and seven camp infirmaries, bivouac in vicinity of road junction 429 (347.4—735.4). Camp infirmaries to all regiments of the main body."

He directs the sanitary inspector to report to the division quartering officer for duty.

The 4th Ambulance Company was not included in this order, as it is under the orders of the advance guard commander and will camp with the advance guard, and unless conditions change materially, will remain attached to it tomorrow.

Camp infirmaries are sent to regiments to give shelter for sick on account of threatened rain. The commanding

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officer, 3d Ambulance Company, is charged, in the march order of 3 July, with the collection of casualties for the day. He detaches the dressing station party for this purpose, and has it march at the tail of the advance guard. About one-third (or less) of the party will be assigned to each of three (or more) casualty collecting points that are indicated in the day's march order.

Depending upon the plan of march, whether in one or more columns, the ambulance detachments of this column are either with the sanitary train, if the march is in single column, or on a parallel road, if the march is in two columns. Whatever the formation, action is taken by the commanding officer, 3d Ambulance Company, to send ambulances to the various march collecting stations after the troops have passed and bring in the casualties, together with the personnel of the dressing station parties. These casualties he drops at the bivouac of the sanitary train for shelter, or, if evacuation is not required, he returns them to their commands after examination. He then goes to those regiments that have been in bivouac for some time (at least one hour and a half), collects cases that have been held at last sick call and takes them to the bivouac of the sanitary trains for rest in a field hospital pending arrival of corps or army evacuation units. This collection is made from all regiments, separate battalions and trains within the division, including the advance guard. The collecting point of the advance guard will normally be at the site of the bivouac of the 4th Ambulance Company, patients having been collected by that company at this point. Upon completion of this collection the surgeon is informed by messenger or telephone of the number and classification of cases (as, "forty-two recumbent, one twenty-five sitting, one contagious sitting for evacuation"). This comes from the commanding officer, sanitary train. Having received this message the surgeon of the 1st Division submits the following telegram to G1, for signature, or, if authorized, communicates directly:

"To G1, 1st Corps, Fairfield, Pennsylvania.

"Forty-two recumbent, one-twenty-five sitting, one contagious sitting, 1st Division field hospital, road junction four hundred twenty-nine, Emmitsburg—Harney road.

"XYZ,
"G1."

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If the surgeon were authorized to communicate directly, this message would be sent to the surgeon, 1st Corps. After the evacuation service takes over these cases the surgeon, 1st Division, receives a message showing:

> "All patients cleared by army at 9:00 o'clock evening."

from the commanding officer of the sanitary train.

In the evening, after consultation with G1, the surgeon recommends that there be placed in the administrative order for the march of 4 July, 1919, the following:

> "March casualty collection points on Harney—Kingsdale road in vicinity of Koon and vicinity of road junction 566. The commanding officer, 1st Ambulance Company, is charged with the collection of march casualties of right column and camp casualties, the commanding officer, 2d Ambulance Company, with collection of march casualties of left column."

These decisions are based on the following points:

> First, the command is marching in two columns of approximately equal length.
>
> Second, the 4th Ambulance Company continues with its former duty with the advance guard.
>
> Third, the organizations of the left column have horsed transportation that can carry their few casualties to camp, and do not require casualty collecting stations.

The dispositions on the march put the 4th Field Hospital Company and camp infirmaries about 4 miles in rear of the head of the main body of the left column. The motorized portion of the sanitary train, less detached units (ambulance companies in advance) are at the head of the motor column, some 10 miles from the head of the main body. The right column is covered by the 4th Ambulance Company (with the advance guard) and the 1st Ambulance Company (engaged in collection), which is either at the tail of the command or moving by bounds on the parallel roads between the two columns as the circumstances require and roads permit.

Second Requirement:

The situation at 11:00 AM, 4 July, as indicated by the message of the advance guard commander, and the position of the sanitary troops of the two columns leads to the following assumptions:

> That the division surgeon is with division staff at the head of the main body of the right column.

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That the main body of the right column has halted with its head at Koon.

That the main body of the left column has halted with its head at Trustle.

The situation of the sanitary units with the right column is as follows:

4th Ambulance Company, covering the advance guard, established at house 1 mile west of crossroads 557 (360.8—738.9) (position reported to the surgeon, 1st Division, by the commanding officer, 4th Ambulance Company, at 11:20 AM).

1st Ambulance Company dressing station party, 1 officer and 8 men, at Koon.

Remainder of party halted at Alloway Creek, awaiting instructions.

Headquarters, bearer detachment, ambulance detachment and combat train still in bivouac at road junction 429, packed and in readiness to move, having collected morning casualties from bivouac of advance guard and main body.

The situation of the sanitary units with the left column is as follows:

4th Field Hospital Company and eight camp infirmaries between the Monocacy River and Barlow, halted off of the road.

Headquarters, Sanitary Train, 2d and 3d Ambulance Companies, 1st, 2d and 3d Field Hospital Companies, mobile laboratory, medical supply unit, and attached Medical Department army units at bivouac at road junction 429 in readiness to move.

The position of the organizations of the sanitary train other than the 4th Ambulance Company is dependent upon the march situation, as shown in the discussion of the first requirement. The position of the 4th Ambulance Company, 1 mile west of crossroads 557, results from the fact that the advance guard has formed for attack on the outpost position, expecting to make the main attack north of the Harney—Kingsdale road with the holding attack south of it. Conformably, after the outpost position was attained, the main regimental collecting point would be somewhere in the vicinity of the road cut near woods at Oak Grove School. The line of drift of wounded would, for that part of the advance guard on the left of the Harney—Kingsdale road, be directly to the rear. The reasons for this are the relative protection afforded by the hills to the front, and that offered on the right by the wooded ravine towards 589, where the casualties could be caught and sent to the station at Oak Grove School. The fact that the enemy has direct observation on the Harney—Kingsdale road from Georgetown Heights to Alloway Creek renders the use of this road undesirable, and

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evacuation must be by the parallel road to the north, on which the 4th Ambulance Company is located. This position is reached by use of unimproved road west of Alloway Creek and is selected as a tentative site for establishment.

After consideration of a draft of the division attack order the surgeon, 1st Division, assumes the following:

> That the attack for the 1st Brigade will be in the nature of fire action with intent to contain the enemy, and that of the 2d Brigade, an envelopment with an assault.
>
> That the casualties on the right will be greater, and that, consequently, he will use the greater part of the sanitary train on that flank.
>
> That since the Harney—Kingsdale road is under fire, other roads must be used for evacuation.
>
> That unless the enemy is reenforced, he will retire with the 1st Division pursuing or continuing its mission; or in the event of reenforcements to the Reds, that the situation will change and require changes of dispositions of the sanitary troops.

He, therefore, decides to hold one-half of the sanitary train as a reserve in readiness for movement with the division, for reinforcement or for establishment on the field to give short haul. He feels that the hour of attack, 4:00 PM, leaves little daylight for a pursuit or an advance.

Having determined in general the local situation, the line of movement of combat troops, the effect of hostile fire on movement of ambulance and walking cases, road net, and distances, and the probable future movement and its effect on the amount of establishment, the surgeon considers the means of evacuation of the corps and army and their influence on the establishment of the division sanitary units.

The 4th Ambulance Company is already established in position to cover the 1st Brigade, and its ambulances can move by the northern parallel road and the transverse road to the Harney—Kingsdale road, west of Alloway Creek, by crossroad 568—road junction 548—and crossroad 533. This position connects with the intermediate parallel road by the unimproved road to the south and with the Harney—Kingsdale road, gives free movement to the rear, and connects with a possible field hospital group in the vicinity of Koon's via 568—548—533.

A search for a probable position for a dressing station to cover the 2d Brigade zone of activity must consider a site that is on roads to the front and the rear for ambulance movement, and on a route of drift of walkers to the rear.

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It must have cover, wood, water, and conveniences. The surgeon chooses a tentative site at the stream crossing 300 yards northwest of Piney Creek.

The position of the dressing stations, the route of division ambulance movement, plus distance to avoid hostile divisional artillery fire (4-5 miles), and a consideration of possible routes of evacuation tie the site of the field hospitals to the vicinity of Koon, about 6 miles from a possible hostile medium range artillery position. The surgeon selects the woods on 533—Taneytown road about 700 yards south of crossroads 533 as a site for the field hospital establishment, and crossroads 533 as a station for slightly wounded. He will hold two field hospitals in reserve for establishment on the field, and will establish only a sorting hospital and a gas hospital here.

The surgeon decides to make a depot for slightly wounded at Harney. He stations a medical officer and some enlisted men at that point to hold these casualties. He prefers to evacuate them by truck to Fairfield, rather than to permit them to walk for a considerable distance through unfriendly territory. He uses part of the personnel of the dressing station party of the 1st Ambulance Company for this purpose, and recommends to G1 that empty supply trucks going to the railhead be directed to report to the medical officer at the depot for slightly wounded at Harney for the purpose of carrying these cases to the corps evacuation point at Fairfield.

The surgeon has determined the sites and general disposition of the sanitary units, with exception of the mobile laboratory and the medical supply unit which are necessarily tied to the positions of the field hospitals, as are the attached army mobile surgical units and mobile degassing units. He can now prepare a memorandum for inclusion in the combat order and the administrative order for the action of 4 July.

OFFICE OF THE SURGEON
HARNEY, MARYLAND

4 July, 1919, 12:30 PM.

MEMORANDUM FOR G1, 1ST BLUE DIVISION.

SUBJECT: Plan Medical Department Evacuation, 4 July, 1919.

1. Following plan of Medical Department collection, hospitaliza-

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tion, supply, and evacuation for 1st Division, action 4 July, 1919, submitted:

Organization and location	*No. of units*	*Function*
I. COLLECTION:		
a. Detachment, Dressing Station Party, 1st Ambulance Company, 1 officer, 8 men, vicinity crossroads 533.		Station for slightly wounded.
Detachment, Dressing Station Party, 1st Ambulance Company, 1 officer, 17 men, vicinity Harney.		Depot slightly wounded and sick.
b. 1st Ambulance Company, (less dressing station party), vicinity wood 700 yards south of crossroads 533.	1	Relay casualties from 4th Ambulance Company.
	1	
3d Ambulance Company, vicinity bridge 300 yards northwest of Piney Creek.	1	Position in readiness to cover 2d Brigade zone.
4th Ambulance Company, established vicinity house 1 mile west of crossroads 557.	1	Cover 1st Brigade zone.
2d Ambulance Company, vicinity wood 700 yards south of crossroads 533.	1	Reserve.
c. Camp infirmaries	8	Station slightly wounded.
Vicinity crossroads 533	1	Depot slightly wounded.
Vicinity Harney	3	
Vicinity woods 700 yards south of crossroads 533	4	Reserve.
II. HOSPITALIZATION:		
Headquarters, Sanitary Train	1	Establish.
		1 Sorting hospital.
Field Hospital Section, Train	1	1 Degassing hospital.
Attached army units	3	2 Field Hospitals, reserve.
Vicinity woods 700 yards south of crossroads 533.		
III. MEDICAL SUPPLY:		
1st Medical Supply Unit	1	Supply.
Vicinity woods 700 yards south of crossroads 533.		

IV. ROUTES AND DESTINATIONS:

Ambulance routes—Ambulance from and to 2d Brigade zone via Piney Creek—538—535—470—526—unimproved road west. Ambulances from and to 1st Brigade zone via 557—Palmer—568—533.

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All casualties except slightly wounded to sorting station.
Slightly wounded via ambulance routes to station for slightly wounded at crossroads 533, thence to depot for slightly wounded at Harney.

V. EVACUATION:
By corps.

VI. CLASSIFICATION:
Routine.

2. It is requested that all supply truck companies moving to railhead be reported to officer in charge depot slightly wounded at Harney for transportation of slight cases.

3. It is requested that the corps be asked to secure a mobile surgical hospital for establishment at Harney, and notified of probable engagement and site of field hospitals.

XYZ,
Lt Col, MC,
Surgeon.

(C-2) ATTACK AGAINST A PREPARED POSITION—MAP PROBLEM

MAJOR R. MCCLEAVE,
Infantry

Maps: General Map, Gettysburg-Antietam, 1″=10 miles.
Gettysburg-Antietam Map, 1:21120, Arendtsville, Hunterstown, New Oxford Sheets.

General Situation:

Virginia and Maryland (Red) and Pennsylvania (Blue) are at war. The 1st Red Corps has invaded Pennsylvania west of the mountains, and is concentrated in the Chambersburg—Shippensburg area.

The 1st Blue Corps at York, detaches the 1st Division with the 1st Squadron, 1st Cavalry, attached, with orders to move via New Oxford and Hunterstown and prevent any hostile advance via Cashtown and Arendtsville.

Special Situation (Blue):

The 1st Blue Division camps for the night of 15-16 June, 1920, after a long day's march, in the vicinity of Hunterstown.

Camp dispositions:
1st Brigade, immediately north of Hunterstown.
2d Brigade, immediately south of Hunterstown.
1st Field Artillery Brigade, 1 mile east of Hunterstown.
1st Observation Squadron, at Brush Run (landing field).

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1st Squadron, 1st Cavalry, at Beaverdam Creek, north of J. Bell.
1st Machine Gun Battalion and 1st Engineers, just east of Hunterstown.
Trains at Brush Run (division railhead).
Outpost detachments from each brigade hold the Plainview—Gettysburg road as a line of resistance, with line of observation on the Goodintent S. H.—Plainview ridge.
The Goldenville—Hunterstown road divides the brigade outpost sectors.

The division has been notified that march orders for next day will issue at 8:00 AM, troops to be ready to march at 10:00 AM.

Events of the night: At 1:00 AM, 16 June, 1920, the standing cavalry patrols of the outpost on the line Mummasburg—Stiner—Biglersville were driven in. They reported a hostile advance from Cashtown and Arendtsville.

The 1st Squadron, 1st Cavalry, was ordered out to gain contact.

The 1st Observation Squadron was ordered to reconnoiter to the west and northwest at daylight.

At 5:00 AM the following messages are received at division headquarters:

From the commanding officer, 1st Squadron, 1st Cavalry:

"A hostile force, estimated as a reinforced brigade, is intrenching between TEXAS and MUMMASBURG. My patrols unable to advance beyond the P. & R. Ry. Hills and woods west of the railroad held by covering detachments. No enemy south of MUMMASBURG. Hostile artillery, apparently near PINE GROVE S. H., is registering north of TABLE ROCK. My squadron remains in observation near hill 654, south of GOLDENVILLE."

From the 1st Observation Squadron:

"The main hostile position extends along the ridge from TEXAS via woods southwest of road junction 703 to the orchard northeast of MUMMASBURG, south of hill 666, detached strong points being rapidly entrenched. Hostile detachments entrenching in woods southeast of TEXAS—hill 707—south of MUMMASBURG—GOLDENVILLE road between road junction 679 and crossroads 648—spur 688—hill 687. A strong detachment occupies the railroad cut, woods and ravines north of STINER'S, an exceptionally strong position. Hostile cavalry is entrenching orchard and woods just east of BIGLERSVILLE. No enemy north of BIGLERSVILLE. No other hostile troops observed east of mountains nor within 5 miles west of CASHTOWN or northwest of ARENDTSVILLE."

From general headquarters:

"A heavy hostile column moved yesterday from SHIPPENSBURG toward ARENDTSVILLE. No movement from CHAMBERSBURG toward

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CASHTOWN. You will attack and destroy any detachments debouching from the mountains. The 1st Blue Corps moves today west from YORK to GETTYSBURG."

Required:

The formal orders of the commanding general, 1st Division (excluding the administrative order).

An Approved Solution

1st Div,
HUNTERSTOWN, PA.,
16 June 20, 6:00 AM.

FIELD ORDERS }
No 20 }

Maps: Gettysburg-Antietam Map, 1:21120.

1. A Red force estimated as a reinforced brigade occupies a defensive position from TEXAS via the woods southwest of RJ 703 to the orchard northeast of MUMMASBURG, just south of hill 666, with covering detachments in the woods southeast of TEXAS—hill 707—south of the MUMMASBURG—GOLDENVILLE road between RJ 679 and CR 648—spur688—hill 637. The position is being intrenched. Hostile troops occupy the railroad cut, woods and ravines north of STINER'S, and cavalry are intrenching the orchard and woods just east of BIGLERSVILLE.

   Our cavalry squadron is now in observation near hill 654, south of GOLDENVILLE.

2. This division will attack enveloping the enemy's right (southern) flank.

   Line of departure: Stream line running northeast and southwest from HERMANS to STOCK FARM.

   Leading assault echelons will cross the above line at 11:00 AM.

   Boundary between brigades: the line VARNEY—woods southwest of RJ 703 (to the 1st Brig)—CR 601.

3. (a) The 1st Brig, moving south of the HUNTERSTOWN—MUMMASBURG road, will deploy east of GOODINTENT S. H. ridge.

   Formation: discretionary.

   Objective: the hostile position between the CONEWAGO and the woods southwest of RJ 703 (inclusive). This brigade will halt upon reaching its objective prepared for prompt assembly in the vicinity of RJ 703.

   The 2d Brig, moving southwest via 556—576—527—531—488, will deploy east of the STOCK FARM ridge and will attack the sector, woods southwest of RJ 703 (exclusive) to the orchard northeast of MUMMASBURG (inclusive).

   Formation: discretionary.

   The attack of this brigade will be pushed strongly in the direction of ARENDTSVILLE, the right resting on the CONEWAGO after passing CR 601.

   (b) The 1st LA, moving via the HUNTERSTOWN—GOLDENVILLE road, will support the 1st Brig from position near GOODINTENT SCHOOL. It will fire on any hostile troops observed immediately north of the river.

   The 2d LA, moving southwest via 592—556—552—517 west, and west on farm roads, will support the 2d Brig from position near VARNEY.

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The 3d HvA, moving via the HUNTERSTOWN—GOLDENVILLE road to position near J. WEAVER, will support the divisional attack; first by concentrations on hostile positions north of STINERS; later, by fire in support of the 2d Brig, particularly on the intrenchments just south of the woods southwest of RJ 703, the orchard northeast of MUMMASBURG and on hill 666.

Registration and harassing fire only until 10:45 AM, when fire for effect will be used. Smoke will be used freely. Fire will be placed on the bridges in rear of the hostile position.

(c) The 1st MG Bn (less 1 Co), will move via GOODINTENT S. H. to vicinity of CR 608 and will assist the attack by overhead fire on covering detachments immediately north and south of the MUMMASBURG—HUNTERSTOWN road, later reverting to divisional reserve.

The rear battalion of the left regiment 2d Brig will follow the attack at the disposal of the division commander.

The 1st Engrs will remain at HUNTERSTOWN charged with the protection of the trains at GRANITE HILL STATION, and at the disposal of the division commander in reserve.

(d) The 1st Sq 1st Cav, with 1 Co from the 1st MG Bn attached, will leave patrols in observation and will withdraw at once to a position north of TABLE ROCK, in close observation of the hostile cavalry near BIGLERSVILLE. It will protect the right flank and rear of the division. Small patrols will cover the left flank and reconnoiter toward CASHTOWN.

(e) The 1st Obsn Sq, from its landing field at BRUSH RUN, will continue observation of the hostile position, and toward CASHTOWN, ARENDTSVILLE and BIGLERSVILLE. One flight will be assigned to the artillery brigade for fire direction and control; one plane to division headquarters for command purposes.

Communication by radio and dropped messages.

(x) (a) Outpost troops immediately at the disposal of brigade commanders.

(b) Brigade commanders are charged with flank protection.

(c) Artillery will have priority on roads.

4. 1st Amm Tn, 1st San Tn and 1st Engr Tn will be released at once by service chiefs. Field and supply trains will move to a covered position near GRANITE HILL STATION.

Station for slightly wounded: CR 501.

5. Plan of signal communication: no change.

Axes of signal communication:

Division: MUMMASBURG—HUNTERSTOWN road.

1st Brig: Same as division.

2d Brig: J. WEAVER—VARNEY—STOCK FARM—HAMILTONS—hill 668—MUMMASBURG.

Command posts:

Division (advance echelon): GOODINTENT S. H. (rear echelon): HUNTERSTOWN.

1st Brig: 1st: J. WEAVER; 2d: Orchard northeast of CR 608.

2d Brig: 1st: STOCK FARM; 2d: HAMILTONS; 3d: MUMMASBURG.

A,
Maj Gen.

Distribution:

CG's all brigs
CO 1st Engrs
1st MG Bn
1st Sq 1st Cav
1st Obsn Sq
CO Tns
CO 1st F Sig Bn
Div Staff, Corps War Diary, File, spare.

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(D-1) ATTACK AGAINST A DEFENSIVE ZONE

LIEUTENANT COLONEL C. M. BUNDEL, Field Artillery, General Situation and Discussion.
MAJOR P. D. GLASSFORD, Field Artillery, Artillery.
CAPTAIN J. W. VINER, Tank Corps, Tanks.
CAPTAIN A. R. CHAFFEE, Cavalry, An Infantry Brigade.

EDITOR'S NOTE:—Four officers have collaborated on the discussion of an Attack Against a Defensive Zone, which opens with the presentation of a concrete situation. In the discussions that follow, the tactical principles and decisions involved are brought out and illustrated.

General Situation and Discussion

General Situation:

Maps: General Map, Gettysburg-Antietam, 1"=10 miles.
Pennsylvania and Maryland Geological Survey Map, 1:62500.
Gettysburg-Antietam Map, 1:21120.

The Potomac and Shenandoah Rivers form the boundary between two states, Red, east, and Blue, west.

The Blues being better prepared, have invaded Red territory from the southwest. The Reds, by quick action, succeeded in destroying the railroads leading north from Greencastle.

The advance of the Blue forces was stopped, both sides have "dug in," the situation has become stabilized and both sides have been busily engaged in raising new forces.

After about two months of stabilization the Reds have constructed a defensive zone consisting of three positions:

The first, through Littlestown—S. B. Fox—G. H. King—hill 528—hill 546—northwest to Cashtown.

The second, through Brushtown—St. Luke's Church—crossroads 516—Wolf Hill—Culp's Hill—northwest through Mummasburg.

The third, through New Oxford—Moritz S. H.—just north of Guldens—road junction 592—Table Rock—Biglerville.

Red positions are well entrenched and wired; no concrete work has been discovered; many places between the positions are known to be strong points or machine gun nests.

The 1st Blue Army is in position from Round Top (exclusive) to the east, the 2d Army from Round Top (inclusive) to the west; Round Top being held by the Reds.

The 1st Corps holds the line from B. D. Snyder to hill 528 (inclusive) (near Round Top). The Reds hold the top of hill 528.

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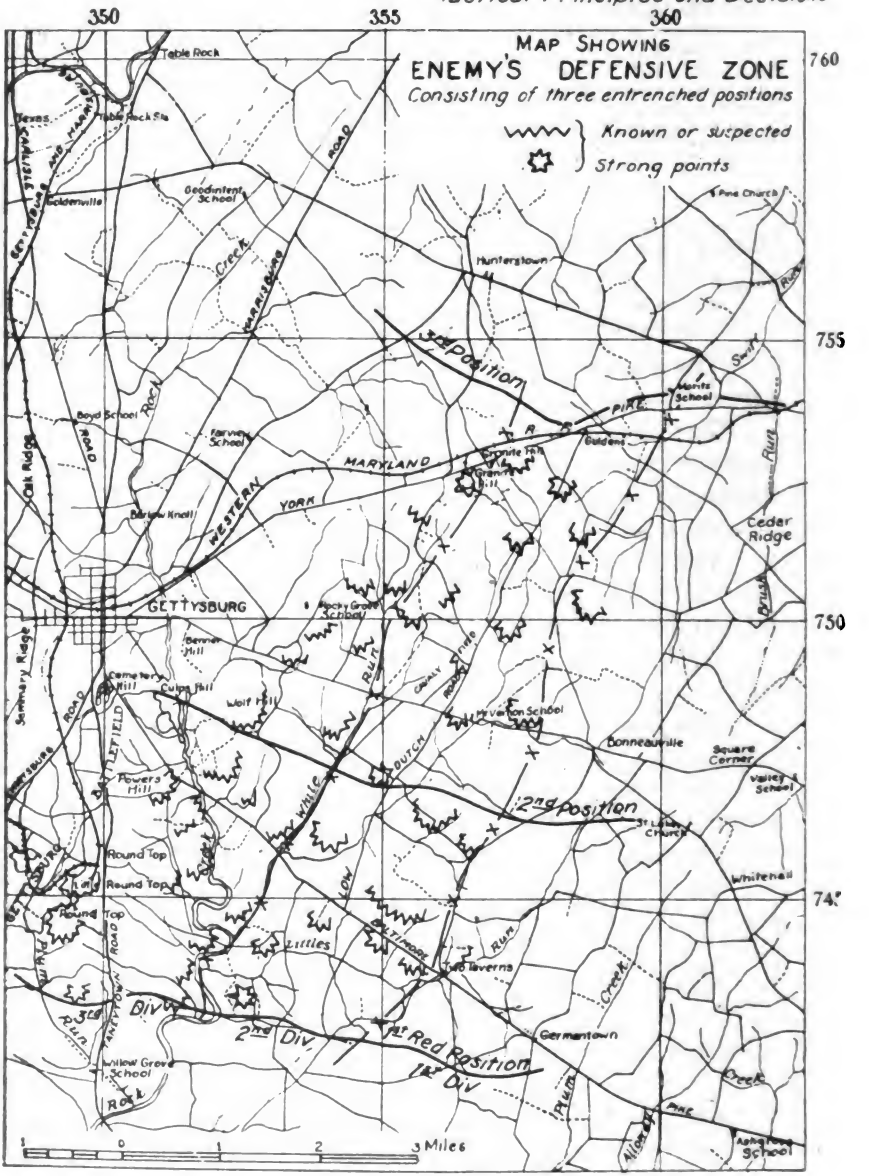
CHAPTER V-D-1

Tactical Principles and Decisions



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The 1st Corps consists of five divisions, disposed as follows:

1st—from B. D. Snyder to Norton (inclusive).
2d—from Norton to Rock Creek (inclusive).
3d—from Rock Creek to hill 528 (inclusive).
4th and 5th in reserve.

Special Situation (Blue):

The Blue army having been heavily reinforced, the army commander decides to attack, with the idea of turning the Red right and forcing them back into the pocket formed by the Susquehanna River and Chesapeake Bay.

The main blow of the Blues is to be northwest of Gettysburg, and the 1st and 2d Corps (2d east of 1st) are ordered to concentrate their efforts towards Two Taverns and Granite Hill, to aid in the reduction of the strongly held salient near Gettysburg. They are to penetrate the Red zone in the vicinity of Hunterstown in one day.

The following corps order is issued (partially quoted, asterisks indicate omission of parts not pertinent):

1st Corps,
HARNEY, MD.,
28 June 19, 11:00 AM.

FIELD ORDERS
No —

Maps: General Map, Gettysburg-Antietam, 1"=10 miles.
Gettysburg-Antietam Map, 1:21120.

1. Situation of enemy unchanged.
Our Army makes a general attack on the Reds on D day at H hour. The 2d Corps attacks on our right and the 3d Corps on our left.

2. (a) This corps attacks on its present front, with the 1st, 2d and 3d Divs in the assaulting line and the 4th and 5th in reserve.
(b) The enemy's defensive zone between BRUSH RUN and HUNTERSTOWN will be penetrated in one day and he will be driven into the open.
(c) Corps Zone.
Eastern Boundary: * * * *
Western Boundary: hill 528 (inclusive)—ROUND TOPS (exclusive)—POWERS HILL (inclusive)—wooded ridge through MCALLISTER HILL, WOLFE HILL and ROCKY GROVE S. H. (inclusive)—ECKERT (inclusive)—patch of woods 1000 yards north of ECKERT (inclusive)—RJ 592 (exclusive).

3. (a) The 1st Div, attacking on its present front and co-operating with the 2d Corps on its right, will penetrate the Red zone between BRUSH RUN and MORITZ S. H.
Eastern boundary: same as 1st Corps eastern boundary.
Western boundary: same as 2d Div eastern boundary, inclusive for exclusive.
(b) The 2d Div, attacking on its present front and assisted by

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the 3d Div, will penetrate the Red zone between MORITZ S. H. and GRANITE HILL. The 2d Div will assist the 1st Div in the capture of TWO TAVERNS and BONNEAUVILLE.

Eastern boundary: NORTON (inclusive)—C. H. KING (inclusive)—TWO TAVERNS (exclusive)—M. RUDISH (inclusive)—RJ 529 (inclusive) farm house 110 yards northwest of RJ 529 (inclusive)—LAWRENCE (inclusive)—orchard 500 yards northwest of M. FINCK (exclusive)—RJ 572 (inclusive)—RJ 582 (inclusive)—farm house 300 yards southeast of RJ 567 (exclusive)—RJ 552 (inclusive)—CR 506 (inclusive).

Western boundary: ROCK CREEK (inclusive)—WHITE RUN (inclusive)—GRANITE HILL (exclusive)—farm house 1300 yards south of CR 585 (exclusive).

(c) The 3d Div, attacking on its present front, will assist the advance of the 2d Div by clearing the western bank of ROCK CREEK and WHITE RUN.

* * * * * * *

(d) An artillery preparation will begin at H hour minus 4 hours. The advance of the infantry will be preceded by a rolling barrage to include the BALTIMORE TURNPIKE.

The corps artillery will place concentrations on * * * TWO TAVERNS—ROUND TOP—LITTLE ROUND TOP—woods near GEO. SPANGLER * * * POWER'S HILL—MCALLISTER HILL—hill 592—WOLF HILL * * * and gas concentrations on * * * BALTIMORE TURNPIKE—woods ½ mile north of BALTIMORE TURNPIKE and west of M. RUDISH * * * wooded areas along ROCK CREEK and WHITE RUN * * *

Non-persistent gas only will be used (see artillery annex).

The 7th FA Brig is assigned to the 2d Div and will come under * * *

(e) The corps air service will * * *

(f) The 301st Bn Light Tanks will support the 2d Div. It will reach HEDGEGROVE and report to the CG 2d Div on D minus 2 day.

The 1st Tank Brig will assemble in the vicinity of PINEY CREEK CHURCH on D minus 3 day and will operate in the direction of TWO TAVERNS and GRANITE HILL.

Tanks will be used in the assault on D day and in exploitation after that day. (See Annex No —.)

(g) On the night preceding the attack the 4th Div will move to a position along ALLOWAY CREEK east of HARNEY and await orders. The 5th Div will follow the 4th to a position south of HARNEY and await orders.

(x) Accompanying guns will be assigned to assaulting battalions. Infantry batteries will be used to the fullest extent.

(y) Line of departure: the front line trench.

4. (See Administrative Orders No —.)

5. (a) Plan of signal communications: (see Annex No —).

(b) Axes of signal communications:

Corps:

HARNEY—TWO TAVERNS—BONNEAUVILLE—GULDENS.

1st Div:

* * * * * * *

2d Div:

J. SMITH—D. F. PLANK—RJ 546—TOPPER—RJ 525—CR 530—CR 562—GULDENS—CR 573—RJ 585 road.

3d Div:

* * * * * * *

(c) Command posts:

Corps:

HARNEY.

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1st Div:

* * * * * * *

2d Div:

KEEFAUVER—RJ 525—CR 530—CR 562—GULDENS.

3d Div:

* * * * * * *

YZ,
Lt Gen.

* * * * * * *

The following is the field order of the 2d Division:

2d Div,
MT. JOY CHURCH, MD.,
1 July 19, 9:00 AM.

FIELD ORDERS }
No — }

Maps: Gettysburg-Antietam Map, 1:21120.

1. No change in situation of enemy.
Our army attacks on D day at H hour. 1st Div on our right and the 3d Div on our left.

2. (a) This division attacks on its present front.
The enemy's defensive zone between MORITZ S. H. and GRANITE HILL will be penetrated in one day and he will be driven into the open.

(b) Division zone.
Eastern boundary:
NORTON (inclusive)—C. H. KING (inclusive)—TWO TAVERNS (exclusive)—M. RUDISH (inclusive)—RJ 529 (inclusive)—farm house 1100 yards northeast of RJ 529 (inclusive)—LAWRENCE (inclusive)—orchard 500 yards northwest of M. FINK (exclusive)—RJ 572 (inclusive)—RJ 582 (inclusive)—farm house 300 yards southeast of RJ 567 (inclusive)—RJ 552 (inclusive)—CR 506 (inclusive).
Western boundary:
ROCK CREEK—WHITE RUN (both inclusive)—GRANITE HILL (exclusive)—farm house 1300 yards south of CR 585 (exclusive).

(c) The attack will be made in line of brigades with regiments abreast.
The 2d Bn 5th Inf and the 2d MG Bn will constitute the division reserve.

(d) Boundary line between brigades:
Eastern point of the woods 1000 yards southwest of D. F. PLANK—CR 491—the RJ 525—CR 516—CR 530—CR 562—GULDENS—RJ 586 road—CR 632. All to 3d Brig.

(e) Time of attack:
To be announced later.

(f) Line of departure:
Front line trench.

(g) Rate of advance:
100 yards in 4 minutes to include the BALTIMORE TURNPIKE. After that time at the direction of brigade commanders.

3. (a) The 3d Brig will attack on the right of the division. It will assist the 1st Div, on its right, in taking TWO TAVERNS and BONNEAUVILLE. It will assist the advance of the 4th Brig by flanking strong points on or near the boundary line between brigades.
Eastern boundary: same as division eastern boundary.
Western boundary: boundary line between brigades.

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(b) The 4th Brig will attack on the left of the 3d Brig. It will assist the 3d Brig by flanking strong points on or near the brigade boundary line. It will be assisted in its advance by the 3d Div on its left.

Eastern boundary: boundary line between brigades.

Western boundary: same as division western boundary.

(c) The artillery preparation will begin at H hour minus 4 hours. Concentrations of non-persistent gas will be placed on hostile batteries, the patches of woods just north of the Red first position, the BALTIMORE TURNPIKE, the patches of woods north of that pike * * * . The use of gas on any objective will cease one hour before the attack is scheduled to reach that objective.

The 4th LA and the 19th LA will support the 3d Brig.

The 5th LA and the 20th LA will support the 4th Brig.

The 6th HvA and the 21st HvA will support both brigades.

A rolling barrage will precede the attack by 150 yards as far as the BALTIMORE TURNPIKE, following which the attack will be preceded by successive concentration on selected points beyond the advancing infantry (see Annex No —).

The forward movement of the divisional artillery will commence at H hour plus 1 hour 45 minutes (see Annex No —).

One battery of light artillery will be assigned to each infantry brigade to furnish accompanying guns. Upon gaining the second position one infantry battery will be assigned to each infantry regiment (see Annex No —).

(d) The 4th Obsn Sq will constantly observe the enemy's dispositions and movements and will report hourly the position of our front line troops.

One flight will be assigned to each artillery brigade for observation of fire.

(e) Co A 301st Tank Bn will support the 3d Brig, Co B the 4th Brig, and Co C and battalion reserve tanks will join the division reserve.

Cos A and B will report to their respective brigades on the night preceding D day. The remainder of the battalion will at the same time, take position in rear of the 3d Brig and be prepared to follow its right (see Annex No —).

(f) The division reserve will move at H hour plus 1 hour to the vicinity of KEEFAUVER and await orders.

(g) Engineers: (see Adminsitrative Orders No —).

(h) The 2d MG Bn will take part in the assault of the Red first position by overhead fire. When it can no longer be used for overhead fire it will join the division reserve.

(x) Accompanying guns and infantry batteries: (see par 3 (c)).

(y) Road circulation: (see Administrative Orders No —).

4. (See Administrative Orders No —.)

5. (a) Plan of signal communications (see Annex No —).

(b) Axes of signal communications:

Division:

J. SMITH—D. F. PLANK—RJ 546—TOPPER—the RJ 525—CR 530—CR 562—GULDENS—CR 573—RJ 585 road.

3d Brig:

Same as division to CR 530, thence MT. VERNON S. H.—M. FINCK—RJ 572—RJ 582—RJ 567—MORITZ S. H.

4th Brig:

D. F. PLANK—CR 491—ST.MARY'S CHURCH—RJ 425—RJ 473—RJ 536—CR 530—thence same as division.

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(c) Command posts:
Division:
MT. JOY CHURCH.
3d Brig:
J. SMITH—RJ 515—MT. VERNON S. H.—GULDENS.
4th Brig:
COSHUN—ST. MARY'S CHURCH—CR 530—GRANITE HILL STATION.
(d) Forward communication centers:
RJ 525—CR 530—SALEM CHURCH.

A,
Maj Gen.

Copies to:

* * * * * * *

DISCUSSION

It will be well to begin by looking briefly into the situation of the whole Blue force.

The Blues, better prepared, have invaded Red territory but have been stopped by a Red force. Both sides have "dug in" and the situation has become stabilized.

The Reds, being on the defensive, have constructed a defensive zone over a depth of about eight miles. This zone consists of three entrenched positions, each separated from the others by about four miles. With about four miles between positions, each rear position is beyond effective range of the enemy's light artillery, which is, of course, some distance away from the enemy's first positions. In other words, when any position is attacked, the position next behind it is 8000 or 9000 yards from the attacking artillery. This means that to attack the rear position successfully the attackers must move their artillery forward from its original positions during the attack. This adds to the difficulties of the attack, and is the reason for having a series of positions separated by about these distances.

The Blue force having been strongly reinforced, its commander decides to attack, attempting to turn the enemy's right and thus force the Reds back into the pocket formed by the Susquehanna River and the Chesapeake Bay.

A glance at the general map shows that, except for the two railroad bridges at Havre de Grace, there are no crossings of the Susquehanna south of Wrightsville. York is the main railroad center of this territory and is the connecting link with the country east of the river.

The Reds, defeated and driven southeast, would be in a very precarious position with the large river and the bay at

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their backs, and their communications with their country would be practically severed.

A turning of the Red left, if successful, would simply drive them back into their own country. The Susquehanna River, with its numerous crossings north of Wrightsville, is not a serious obstacle.

The Blue commander, realizing that the hilly area south of Gettysburg will doubtless be very difficult to take, has taken steps to make the task as easy as possible. While the area is attacked in earnest, an especially heavy attack is made northwest of it, and the 1st and 2d Corps, to the east, are ordered to concentrate their efforts towards Two Taverns and Granite Hill. He is therefore really attempting a double penetration on the sides of this Red salient.

If both are successful the salient must fall. If only one is successful, a blow along the base of the salient, from the apex of the successful drive, is then possible and the salient is threatened with being cut off. In either case the salient is reduced without the costly work of taking it by a strictly frontal attack.

This method of attack is similar to the action of smaller units in attack, but on a larger scale. An attack on a long front quickly develops into local actions, usually against strong points. One part of the line is held up by a strong point, an adjacent or possibly both adjacent units meet with less resistance, advance on the flanks of the strong point and reduce it. Here the Blue commander foresees the difficulties and prepares for what will probably happen.

It is seen from the problem that the 2d Corps has five divisions, three of which have been put in the line and two held in reserve.

The corps commander, also recognizing the difficulties in taking the hilly area on his left, has placed his reserves in rear of the 1st and 2d Divisions.

Assuming for the moment that the attack progresses about as expected, the reserve divisions will be available either for assisting the 1st and 2d Divisions in their advance, or for widening the breach, should these divisions advance as planned.

To place a reserve behind the 3d Division would probably result in holding it out of any possible theater of action.

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since it is almost sure to have great difficulty in taking the positions immediately in its front, even if aided by the units on its right or left.

In view of the terrain over which the corps has to operate, a forward movement of the three front line divisions, each within its own zone and independently of the others, would probably result in the left division being held up by the wooded ridge in its front, while the center division advanced until it uncovered the left one and was then drawn towards this ridge, the right division all the while keeping up its advance.

As the line was lengthened (due to the forming of a salient) an excellent opportunity would be offered the corps commander to throw a reserve division towards the northern end of the ridge, where the ground is much more favorable for attack. This would doubtless cause the fall of the Red salient and avoid the necessity of carrying it by a purely frontal attack.

Such a procedure might be correct if the corps had no other mission than the reduction of the salient, but it has the mission of penetrating the Red defensive zone and of cooperating with the troops on its right.

To attempt the reduction of the salient by this maneuver would mean loss of time, since time would be necessary to get up the reserve division and launch it in its attack. As the attack of the Red zone is to be carried through in one day it is obvious that some other plan must be selected.

To direct the center division to assist the left division in its advance would probably result in the same thing. The center division would be drawn towards the wooded ridge and in all probability would not carry out its main mission.

While it seems fairly certain that the 3d Division will be stopped by the difficult terrain in its front, there seems no reason why it cannot push its right forward along the western banks of Rock Creek and White Run. By so doing it will engage the Reds that occupy the ridge and thus aid in the advance of the 2d Division. Hence it would appear best to order the 3d Division to assist the 2d Division, rather than the 2d to assist the 3d.

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If, however, this wooded ridge extended only a short distance back of the Red first position, so that it could easily be enveloped, the solution might well be quite different. By giving the center division a front of attack so narrow that it could be handled by one brigade, the other brigade would be available for making the envelopment, while the assaulting brigade pushed to the front.

The towns of Two Taverns and Bonneauville will doubtless be well defended, and the 2d Division should be ordered to assist the 1st Division in the capture of these places. Since the 1st and 2d Divisions are to make the penetration and should advance at about the same rate, they should be given orders to assure this co-operation.

Before making a decision it will be well to look into the problem a little closer.

The division is to attack on a front of about 3000 yards, and carry in one day a defensive zone about eight miles in depth and consisting of three well entrenched positions.

The country over which the attack is to be made is generally quite flat, but offers numerous good machine gun positions with excellent fields of fire. Once the assaulting lines have passed the first Red position, the combat will quickly develop into more or less isolated fights around the various machine gun positions. Behind these are the second entrenched positions, more machine gun nests, and then the third position, all of which must be carried before the enemy is forced into the open.

In the earlier stages of the World War, the attack was generally planned to take the first position and the machine gun nests immediately in rear of it. The advance was then stopped, the attack reorganized, and the second position assaulted in much the same manner as the first had been, and so on with any other positions in rear. This method was soon abandoned, as it gave the enemy plenty of time to meet the various assaults by artillery concentrations and counter-attack in strength.

In the later stages of the war, such zones were attacked by sending the infantry in to go to their maximum limit, the artillery being required to push forward and keep up its support all during the attack. In this way the enemy was given no respite and no time for deliberate counter-attacks.

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General A has two general methods of deploying his division for the attack:

First—He may put one brigade of infantry in the assaulting line, keeping the other in reserve.

Second—He may put both brigades in the first line, holding out a part of one as a reserve.

Taking the first method, the principal advantage seems to be that the division commander would have at hand a large, formed reserve, consisting of one unit, which could be readily used to repel counter-attacks, fill in gaps in the line, or make flanking attacks. This is an excellent disposition when the division is attacking on a narrow front and in an attack which may last for days, where the question of fresh reserves is an all-important one. In the present situation the division front is wide and the attack is to be forced through in one day, so the question of a large reserve for replacement is not important from a division standpoint.

The great disadvantage of this disposition is that the assaulting brigade is too greatly extended. The questions of communication and control are vital in an attack, and with the brigade extended over a front of 3000 yards these become too difficult.

Elaborate plans may be made in advance for all kinds of communication, but it usually happens that the commander of the assaulting wave must soon depend almost entirely upon runners. His telephone lines are shot out or broken, or cannot keep up with the attack, visual signalling cannot be used for obvious reasons, the radio refuses to work, and so on.

In addition, it must be remembered that the assaulting line in such a case (one brigade) must drive through three hostile positions and reduce the strong points between. This means almost continuous fighting and the consequent using up of the front line battalions in a comparatively short space of time. As the attack must be pushed without delay there is little opportunity for relief of front line troops, certainly not by a "passage of lines" by brigades. This means that the assaulting units must be in great depth, so that the worn out units may be quickly relieved by those immediately in rear.

It is manifest that one brigade deployed on the whole front of the division would not be able to meet these re-

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quirements. When the brigade is worn out, another brigade would have to be put in to keep the attack moving. This would mean loss of time and disruption of the continuity of command, which cannot be permitted at this stage of the attack.

Should the front of the division be less extensive and the attack a local one, that is with a limited objective, this formation might be used. However, the general use for a formation with brigades one behind the other is in attacks over very long distances, in which the units will be called on to fight for days. In such cases a large reserve is necessary.

Now as to the second method, that of placing both brigades in the line. As has been seen, the question of reserves is a comparatively small one in this situation. The task of the division is a difficult one, the losses will doubtless be great, the front line troops will have to be relieved frequently, and the attack must be pushed forward at all hazzards. This calls for the brigades on a narrow front and echeloned in great depth.

The front of the division, 3000 yards, is not excessive, though it will require five or six battalions in the front line. This will mean that one or two of the regiments will have to put two battalions in front. This, of course, weakens the line, but is permissible in the present case, where there are two brigades of artillery (double the normal) supporting the attack. The increase in artillery fire power makes up for the decrease in strength of the line.

However, should the division be sent in to the attack with only its own artillery to support it, a different case arises. The artillery cannot then properly cover such an extended front, so the division is ordinarily forced to fight on a much narrower front. The narrower the front, as a rule the less need of so many units in the assaulting line, hence it might be expected to see the division fighting (in such a case) with one brigade in the assaulting line and one in reserve.

The boundaries of the division are laid down in the corps order, so it is only necessary for the division commander to specify the boundary between brigades. As a

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general rule this line is determined by the natural features of the ground, but not always. It is very desirable to have the boundary follow easily located features, so that there will be little chance of mistake. Units in their advance, unless ordered otherwise, must confine themselves to their respective zones, or attacking across each others' fronts and mixing of units will result.

However, there is another consideration that effects the fixing of boundaries, and that is the enemy's system of defense between his entrenched positions. If the boundary line runs directly through the front of a well defended area, there is no opportunity for units to assist the units next to them by flanking movement. All things considered, it is best to put the boundary line between adjacent strong points.

As noted in the *Infantry Drill Regulations*: "For an attack of this kind (against a carefully prepared trench system) all action is regulated down to the minutest detail of time and space, by superior authority." It is usual for the division commander to prescribe the formation of units, at least down to the regiment. The plan for an attack of this kind is very complicated and unless all details are worked out in advance, something may slip and the whole plan fall down. It is not meant by this that the commander attempts to foresee everything and plan accordingly, but he does arrange all the details so that the attack may start exactly as he wishes it to.

For the reasons given above it seems proper to have the brigades attack with regiments abreast, each regiment being in column of battalions, as far as that can be done. This formation is one of the most powerful that the division can take up and is used for making a powerful drive over great distances in a short time, or in a short drive where the division will be fighting a comparatively short time.

There now remains the question of the division reserve. To determine the size, it is necessary to look into the functions of a division reserve. It is not the function of a reserve of a division to replace casualties in the front line; this is done by the local reserves. His reserve is the division commander's means of influencing the action,

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once it is started. He can use it to support a threatened part of the line, or throw it in to stop a hostile counter-attack.

In considering the question of a reserve it is well to keep in mind the essential difference between an attack of a defensive zone and an attack against an enemy in a hastily assumed position. If the division is acting alone, or as a flank division of a corps in war of maneuver, the size of the reserve is a very important question, but in an attack of the kind under discussion, where the work of the division is practically laid out in advance and it is restricted to a certain terrain and deployed over a wide front, it seems that the question is rather one of getting as many troops as possible into the fighting line, than one holding out a large reserve. While the action is going to be costly in man power, the brigades are formed to meet that emergency, and the possibilities of using a large reserve seem small. It would, therefore, appear best to take as few men as possible from the front line troops. A battalion of infantry seems to be enough, and should be taken from the brigade that has the least difficult task ahead of it.

The engineer regiment, while it may be used in action in a grave emergency, has other work to do, and plans must be made for using it. In attacking over a restricted area, in which masses of artillery and ammunition trains and other vehicles are to be pushed forward, the roads must receive prompt attention. This is usually worked out in great detail by G1 and published in the administrative order. This plan covers the road circulation, the repair of roads, and so on, and specifies just what units may use certain roads and at what hours. This order usually covers the use of all of the engineer regiment, except so much of it as may be assigned to the artillery for road repair work. Sometimes it has been found advisable to attach engineer units directly to artillery regiments or to the artillery brigade, in order to insure the repair of roads that the artillery will use in advancing during the attack.

The corps order prescribes an artillery preparation of four hours, and naturally the division commander has no option in that respect.

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In determining whether or not there shall be an artillery preparation or how long a one is desired, there are several things which must be considered. The first is the element of surprise. However, surprise is a very difficult feature to introduce into an attack by a very large force, hence it is usual for the enemy to know that an attack is planned, but he is often in the dark as to the exact time and place of the attack.

With an artillery preparation along the whole line, while it eliminates the element of surprise as far as the whole attack is concerned, the enemy is in the dark as to just where the main blow will fall. In other words, so far as the smaller units are concerned, the surprise element is, to some extent, still present.

In determining the length of the preparation, the question of ammunition supply is very important. However, in a stabilized situation arrangements are easily made to augment rapidly the large supply of ammunition that is kept on hand.

The longer the preparation, the more time the enemy has in which to bring up troops as reinforcements. In the early stages of the World War attacks were preceded by days or even weeks of artillery preparation. The position to be attacked was literally blasted away with shell. Nothing could live in the shelled area and the attack was simply a move forward against little or no opposition. But this prolonged preparation gave the enemy plenty of warning of where the blow was to fall, and he prepared for it by massing artillery and infantry in rear and to the flanks of the threatened point. After the preparation, the attack was launched and the objective was easily gained, and then the enemy immediately smothered it with artillery fire, counter-attacked with overwhelming numbers and drove the attackers back with heavy losses.

Later, the preparation was reduced to a few hours or omitted altogether. In three of four hours the enemy is unable to move any large force to the threatened point.

A short preparation cannot be depended upon to destroy well constructed works or cut wire entanglements. However, by the use of gas, the hostile artillery can be neutralized and certain important localities made untenable for

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his infantry. The gassing of extensive areas takes time to be effective. In this particular case there are no concrete works to destroy and it cannot be hoped to cut his wire, but there are a number of important areas that should be neutralized. A preparation of four hours would insure this.

In using even non-persistent gas, care must be taken that the concentration is not kept up too long, or the attacking infantry will suffer from it.

The *Infantry Drill Regulations* state that in an attack of a well entrenched position the assaulting waves are preceded by a rolling barrage. It is well to note that this paragraph refers to an *entrenched position*, while this discussion is concerned with a *defensive zone*.

Manifestly it is impossible for the artillery, from its position in rear of its own front line, to put down a barrage over a depth of eight miles. To do so it must advance behind the infantry.

Assuming for the moment that the artillery is able to put down a barrage over this depth, will it be effective throughout? It would be if the advance of the infantry were steady and uninterrupted, but it is quite certain that this will not be the case. Some parts of the line will be able to advance much faster than others. When this occurs, the barrage, which must move as per schedule, will move ahead of those parts of the line that are held up, the enemy will come up out of his dugouts after the barrage has passed and will have a good opportunity for firing on the infantry.

In the present situation, with two artillery brigades at his disposal, the division commander can easily cover the whole front of the division with an effective barrage, even while part of the artillery is being moved forward. However, the question of supplying ammunition to the advanced guns becomes very important. If it be assumed that only one-half of the artillery is firing (while the other half is moving forward) and that the infantry averages 100 yards in 6 minutes, a barrage over this whole zone would require in the neighborhood of 100,000 rounds, or about 600 3-ton truck loads of ammunition.

For the first stages of the attack the question of ammunition supply is not so serious and there appears to be

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no reason why a rolling barrage cannot be used to include the Baltimore Turnpike. After that is reached, a barrage becomes impracticable and resort must be had to infantry batteries and to concentrations on important points.

The infantry should have some accompanying guns assigned at the start, and there should be available, as soon as the barrage ceases, at least one battery per regiment for use as infantry batteries.

Since the division reserve is very small it would be well to hold the division machine gun battalion with the reserve. However, the fire effect of this battalion should not be lost, especially during the early stages of the attack. It could well be used in the attack of the first Red position, and beyond that position to the limit of its range. By overhead fire it can augment very materially the barrage of the artillery. When it can no longer be used in this manner it should join the reserve.

The division commander has at his disposal a valuable auxiliary to use in keeping him in touch with the advance. This is the observation squadron. Of course, he has ordered an elaborate system of communication with all parts of his division, every available means of communication being used. However, it often happens in attacks of this kind that all communication with the assaulting units is lost, the enemy puts down a barrage which cuts telephone lines and stops runners, and otherwise interferes.

It is the duty of the pursuit squadrons to clear the air so that the observation squadrons may work. If this is done the observation planes can fly over the enemy's position, observe his dispositions and movements, and, what is equally important to the division commander, report the exact location of our own front lines.

The infantry is equipped with marking panels for marking the front line positions. These are displayed either at a given hour or upon signal from the airplane on that duty. The latter system seems to be preferable. In the former the displaying of the panels at a specified hour may be forgotten in the stress of battle, or the plane may not be in position to observe at that particular time. It is the duty of the infantry to push the advance and not to stand idle holding panels

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until a plane comes along to observe them. In the latter case the plane flies overhead, identifies itself and signals for the marking panels, which are immediately put out by the front line infantry. The observer notes them, flies on, the panels are taken in and only a few moments are used.

Some airplanes must be attached to the artillery for purposes of observation of fire. This is especially necessary in the case of the heavier guns of long range. In a stabilized situation, prior to the first move forward of the artillery the necessary firing data for the opening stages of the attack will be very accurately prepared in advance and observation of fire is not so necessary. In addition, with all the guns firing the observation of the fire of any particular unit is practically impossible.

Later on when the artillery has moved forward to new positions and new targets appear for which the firing data has not been accurately figured, observation of fire becomes very important, and here the airplane is valuable. By means of aerial observation the fire of the heavier guns can be very accurately adjusted upon certain points, and an accurate fire can be shifted (within certain limits) to other targets without further adjustment.

A battalion of light tanks has been assigned to the division for the attack. The battalion consists of three companies.

Probably no heavy tanks were given to the division because of the open nature of the ground over which it is to attack. There are no heavily wooded areas and no difficult streams. Apparently the only difficulties that the light tanks will have will be in crossing the three main lines of trenches. However, even this should not prevent good use being made of the tanks.

As the tanks are purely an auxiliary for the infantry, the division commander is not concerned particularly with their tactical use. In his order he makes an assignment of them to brigades and designates generally how they will be used, but leaves the actual employment of them to the brigade commanders. However, he should keep in mind that the division has a long, difficult task ahead of it, one that will probably be rather costly in tanks. He should therefore

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arrange to have tanks available for the last stages of the attack and for the exploitation after the objective is reached.

A proper assignment in this case appears to be one tank company to each brigade and one held in reserve.

The question of the disposition and use of the tanks will be fully discussed below.

The order for an attack against a system of trenches or a defensive zone, while it follows generally the form prescribed in the *Field Service Regulations*, must of necessity contain much more detail than is usually placed in a field order. The order itself and its annexes are very voluminous and require a great deal of work on the part of the whole staff. They go into every phase of the attack in the greatest detail, so that nothing will be omitted and no misunderstandings will arise. As stated in the *Infantry Drill Regulations*, practically nothing is left to the initiative of subordinates.

While this apparently violates the teaching of the army, it is nevertheless necessary. The attack of a defensive zone is a special case, the plan and its execution are so intricate, so many units are involved in a small area, and the success of the whole depends so closely upon the proper working of each element, that no chances can be taken.

The field order should follow pretty closely the form laid down in *Field Service Regulations*. A number of subparagraphs are usually added, though care should be taken in this order, as well as in any other kind of order, to eliminate all extraneous matter. Only such information and orders as will insure the success of the attack are put in the field order. All technical matters relating to the various auxiliaries are put in the proper annexes.

Many field orders for attacks against defensive zones in France, at first glance, seem to have contained much that was unnecessary. But when the conditions under which those attacks were made are considered, it is seen that they were necessary. The troops were new and many only partially trained. The officers were inexperienced and the staffs were new at the work. Also new weapons were used and officers and men were not familiar with the proper handling of them. For these reasons many things were neces-

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sary in a field order that under normal conditions would have been omitted.

However, it must not be overlooked that although many details and voluminous orders are necessary to inaugurate such an attack, the subsequent order, the actual order for the attack, is short and to the point. It follows the model in *Field Service Regulations*, gives a definite task to each unit, and co-ordinates the work of all units, while omitting all the details that have been covered in the various annexes and administrative orders.

The principles involved in the attack of a *defensive zone* may be summarized as follows:

Deployment in great depth. This is necessary so that there will be sufficient driving power to carry the attack over a long distance in a short time.

Deployment on a narrow front unless assisted by reinforcing artillery. This is necessary in order to have the formation in depth. In case the unit is reinforced by plenty of artillery, the front may be extended, the artillery fire making up for the lack of infantry.

Driving the infantry forward to its limit. This means the elimination of the so-called first, second, etc., objectives. But one objective is given, namely, the whole zone, and the attacking units force their way forward by constant hammering, giving the enemy no chance for special maneuvers to meet these blows.

A small division reserve. This is usually necessary because as many troops as possible should be in the assaulting line. It is not dangerous, since the constant hammering of the enemy prevents his organizing and launching powerful counter-attacks.

Infantry batteries. These are generally necessary in assisting the advance of the infantry when held up by local strong points. In an attack made over a great distance and in a short time, it is essential that the infantry advance promptly, and to assure this artillery must be at hand for the immediate support of units that are temporarily stopped.

Mutual assistance. Difficult places are usually known before the attack, and to make certain the co-ordinated advance of the whole line orders should be given all units to assist the adjacent units. If no such orders are given the attack may soon stop because certain units cannot advance and those that have already pushed forward, have their flanks exposed.

Use of the artillery. If sufficient artillery is at hand, a rolling barrage should precede the infantry to the limit of effective barrage fire from guns behind our own lines. If there is a shortage of artillery, it should be employed on concentrations on specially selected points ahead of the advancing infantry. This method is also employed after the rolling barrage ceases.

Generally speaking, a division, in an attack against a defensive zone, if not reinforced with artillery, should not be given a front greater than about one mile. If it has reinforcing artillery this front can be extended to about 3000 or 3200 yards.

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Artillery

The tactical principles and decisions that concern the division commander have been brought out. It has been seen that he leaves certain tasks to his subordinate commanders and staff officers. Some of these will now be taken up in detail, and the first to be so considered are those of the artillery commander.

An attack upon a defensive zone is usually preceded by a preliminary bombardment. The considerations in deciding upon the length of this bombardment have already been discussed.

The efficacy of this bombardment depends largely upon the success of the artillery information service in obtaining full and accurate information relative to the enemy's positions, batteries, observation posts, command posts, vulnerable points of his communication system, etc. In general this information, when gathered preparatory to an offensive, is not made use of until the bombardment preceding the attack. The reason is obvious. If a known observation post is fired upon several days before the attack, it may be moved to a position more difficult to locate. The same applies to command posts and any other of the enemy's establishments. Counter-battery firing should not be indulged in prior to the bombardment unless it can be carried to a complete destruction of the batteries fired upon. Too much preliminary firing results in reprisals and retaliations that hamper the forward concentration of troops and guns for the attack. The general principle of the artillery preparation is suddenly, and when possible unexpectedly, to overwhelm the enemy within a zone limited by the range of the guns, with a mass of artillery fire that destroys his communications, cuts breaches in his wire, neutralizes his artillery, and disarranged his defensive organization, so that his powers of resistance are greatly reduced.

From a purely artillery point of view, the means of deciding the length of the artillery preparation would be, first to determine the number of rounds necessary to obtain the desired results, and then, the minimum time required to fire this number of rounds.

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The artillery of the attacking troops almost invariably establishes and maintains a superiority of fire. The defender's artillery is at a disadvantage for the following reasons:

(a) The power of his fire is greatly neutralized by a sudden overwhelming fire from an artillery command usually reenforced so as to be greatly superior in number of guns.

(b) He does not usually know the plan of the attack, the time of the attack, the progress of the advancing lines, nor the points where the main thrusts are to be made.

The defender's artillery will fire protective barrages and counter-preparations, as his fire will never be completely neutralized. It is therefore essential that these barrage lines and concentrations be determined before the attack. A threatened attack is the surest means of accomplishing this.

An efficacious artillery preparation enables the progress of the attack through the disorganized zone to be more or less foreseen, so that the advance may be regulated by a time schedule, and may be preceded by a curtain of artillery fire advancing at the same rate. During this phase all guns are in action, and the maximum fire power of the artillery is utilized.

The efficacy of this artillery support decreases as the attack advances, because the effect and accuracy of the artillery fire gradually decrease as the range increases, because the distant defensive organizations have not been so thoroughly neutralized as those closer to the front line, because the range of the more distant and therefore least neutralized hostile batteries decreases, and because it becomes more and more difficult to adhere all along the front to the mechanical plan.

Finally, as the attack assumes the nature of small local engagements, guns must be allotted to the commanders of units smaller than a division, with a sufficient reserve of artillery held under division control to enable heavy concentrations to be applied at points where these concentrations may assist in obtaining decisive results.

When the advance is held up either by darkness or by a resistance that is insuperable, most of the artillery must revert to division control in order that concerted action may

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make possible the launching of a successful attack the following day.

Formerly, when the range of artillery was comparatively short, part of the guns were distributed along the line for local employment, and the remaining guns were held in reserve, ready to move forward to reenforce any part of the line. With modern long range artillery the artillery reserve is the ammunition. An artillery commander should endeavor to utilize all guns to their maximum firing capacity, and should further endeavor to make this utilization as continuous as possible. The latter requires great skill in the forward displacement of large artillery commands. While moving forward, guns are out of action, therefore the following considerations are of great importance:

(a) Movement should be made quickly.
(b) Long movements mean less frequent changes of position, and less time out of action.
(c) Forward movements must be preceded by a thorough reconnaissance of both routes and positions.
(d) A battery held up on the road is equivalent to a battery neutralized.

As important demands for artillery fire will come from the infantry front lines, the matter of communications therewith is one of the most important problems for the artilleryman to solve, and the most difficult. The advance of infantry is more or less continuous, whereas that of the supporting artillery is by jumps from one firing position to another. The aim of supporting artillery must be to meet promptly and efficiently every demand for fire from the infantry front lines. However, it must not be presumed that a battery or a battalion is to remain inactive after the mechanical phase of the attack, awaiting demands for artillery fire from the infantry front lines. The artilleryman must find his own targets, and keep his guns in action as continuously as possible. This can only be accomplished by keeping up observation on the enemy, a most difficult task, but the only sure means of maintaining effective artillery fire.

In the situation under consideration the divisional artillery is reenforced by a field artillery brigade. Orders issued in the American Expeditionary Forces to cover cases of this kind, placed both field artillery brigades under the command of the divisional chief of artillery, no matter which brigade commander might be the senior.

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The enemy has great advantages in observation, and very little concealment is possible. It will be difficult in daylight to mass so many guns forward in preparation for the attack. Many positions cannot be occupied at all until the night before the attack. Such positions must be carefully reconnoitered by small reconnaissance parties, the actual positions of the guns staked out, telephone lines put in, and the necessary topographic preparations made for map firing.

Very little preliminary adjustment of fire can be made, and it will not be possible beforehand to determine the muzzle velocity of all the different lots of ammunition. Map firing will be used almost exclusively during the artillery preparation and during the early phases of the attack. The artillery plan must therefore be simple, and not based upon great accuracy of fire.

The artillery dispositions will depend largely upon the formation for the attack taken by the two infantry brigades. In this problem the brigades are placed side by side with both regiments in line. Though one artillery brigade could be assigned to each subsector, with one regiment of light artillery supporting each infantry regiment, it is preferable to dispose the division's own artillery brigade so that all units support the infantry units with which they are habitually associated, and then to superimpose, so to speak, the reenforcing brigade. This disposition maintains that close association between the artillery and infantry that must be built up in every division, and has the further advantage of not requiring a complete change in artillery dispositions when the reenforcing brigade is withdrawn.

The average width of the 2d Division sector between the Red first and second positions is 2800 meters. With 24 batteries of 75's available, each battery can cover an average front of 116 meters, not too much for an effective rolling barrage.

Later in this discussion it will be shown that the forward movement of the artillery must commence by H hour plus 1 hour 45 minutes, so that it will not be practicable to continue an effective rolling barrage much later than this hour. The diminished number of guns can then be utilized to put down successive concentrations on selected points ahead of the infantry advance.

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With 12 batteries of 155 mm. howitzers, a total of 48 howitzers, there will be an average of 60 meters per howitzer. In addition there is the corps artillery, which, if uniformly distributed over the corps front, will allow about 16 guns to the 2d Division sector, hardly sufficient for all the counter-battery work. The divisional artillery will be required to undertake some of the short range counter-battery firing, while the army artillery will assist at the longer ranges.

During the early stages of the attack the counter-battery work must be co-ordinated by the chief of corps artillery. When the attack has advanced beyond the range of the corps artillery guns, the divisional artillery must take up unassisted, the relentless struggle against the hostile artillery until the corps artillery guns can be advanced. Provision must be made for the early advance of sufficient divisional howitzers for this purpose.

An attached battery of twelve 6-inch trench mortars will be utilized for the gas concentrations within the range of these mortars, and for destroying wire entanglements covering the Red first position. Trench mortars are very efficacious and economical for such use.

From the initial positions all of the divisional artillery guns will be able to reach as far as the enemy's second defensive position, but only at extreme ranges, and at extreme ranges artillery fire loses greatly in effectiveness. Provision must therefore be made to advance sufficient artillery to position from which highly effective fire can be delivered against the second position, before the attack on that position takes place.

Positions along a general east and west line through St. Mary's Church will answer this requirement, but will be 9000 meters from the Red third position, so that at least one more advanced position must be occupied before the operations planned for this day can be successfully concluded.

Between the first and second positions there are two good roads available for the forward movement of the artillery. Beyond the second position there is one good central road, and a road on the extreme left of the sector along White Run. Movement across country does not seem impracticable, but if resorted to, delays in preparing crossings

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at the many creeks must be expected. Provision must be made to send engineers well ahead of the artillery along the routes determined upon and published in the artillery plan.

The prescribed rate for the infantry advance as far as the Red second position is 100 yards in 4 minutes. At this rate this position will be reached at H hour plus 4 hours 8 minutes. In the artillery order that follows, the advance is so regulated that an entire artillery brigade is in a forward position to support the attack on the second position. The other brigade fires from the initial positions, at long ranges, to be sure, but it is impossible to advance both brigades in time to support this attack from forward positions.

After the infantry has gained the Red second position and has passed beyond, this second brigade takes the road, passes through the brigade that moved forward first, and goes into positions north of the Gettysburg—Bonneauville road, where it can support the attack on the Red third position at effective ranges.

The displacement table in the order that follows is based upon the following considerations:

(a) A leap-frogging of brigades with jumps as long as possible.
(b) Advance to be made in two columns.
(c) Average rate of advance 4 miles per hour.
(d) Advance to be made by battalion, with sufficient distance between battalions on the road.
(e) Table is made for the first advance only, subsequent movements to be determined by circumstances.
(f) All guns to be in action during the assault on the Red second position. (Same for the third position if possible.)

In preparing the divisional artillery order that follows, the form for field orders given in the Field Service Regulations has been followed.

The principal purpose of this order is to govern and coordinate the employment of the divisional artillery. Its secondary purpose is to inform the other elements of the division as to the scheme of artillery employment. To accomplish this secondary purpose it is employed as an annex to the division field order.

As divisional artillery annex, it differs from that of an army or corps field order in that it is also an order to govern the employment of an artillery unit, issued by the commanding officer thereof. The artillery annex of an army or

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corps field order is purely an artillery plan to co-ordinate the employment of a number of separately commanded artillery brigades.

A chief of corps artillery has no direct command over either the corps or divisional artilleries. He therefore can not issue a field order. A chief of army artillery has direct command over the army artillery only, and therefore cannot issue a field order that applies to the corps and divisional artillery units. But the chief of divisional artillery has direct command over a brigade, and in exercising his functions as a brigade commander, issues field orders the same as any other brigade commander of no matter what arm of the service.

His field order, used as an artillery annex to the division order, necessarily contains some matter copied from the division order. It is therefore advisable, when time permits, to prepare an extract of this order and head it:

ANNEX No — TO FIELD ORDERS No —, — DIV, (DATE)

ARTILLERY

Extract of Field Orders No —, — FA Brig, (Date)

In this way duplication is avoided.

A synopsis of the divisional artillery field order given in the following pages is as follows:

(Title)
(Place)
(Date and hour)

FIELD ORDERS
No —

(Map reference)

1. *Information of enemy and our supporting troops.* Mainly extracts from the division field order essential for the information of the divisional artillery command. Also the general scheme of support of the army and corps artilleries (and other supporting artillery units, such as the divisional artilleries of adjacent sectors).
2. *General plan for artillery employment.*
3. *Detailed instructions for the employment of the divisional artillery.* Paragraphs (a), (b), (c), etc., contain special instructions to various units of the command. Paragraph (x) contains instructions pertinent to the entire command, such as: rates of fire, accompanying guns and infantry batteries, the artillery preparation, the artillery support during the attack, forward displacement, air service, use of gas, etc.
4. *Evacuation,* and instructions for the *ammunition train* (and artillery field trains when necessary).

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5. *Signal communications, command posts,* etc.

Authentication.

Distribution:

NOTE:—As far as possible, the data is put into tables and diagrams attached to the order.

ANNEX No — to FIELD ORDERS No —, 2d DIV, 1 JULY 19.

ARTILLERY

2d FA Brig,
MT. JOY CHURCH, MD.,
1 July 19, 11:00 AM.

FIELD ORDERS
No —

Maps: Gettysburg-Antietam Map, 1:21120.

1. (a) No change in situation of enemy.
   (b) Our army attacks on D day at H hour.
   (c) The 2d Div, supported by tanks, attacks on its present front, to penetrate the enemy's defensive zone between MORITZ S. H. and GRANITE HILL and drive him into the open.
   (d) Objectives of army and corps artillery within the 2d Div zone of advance shown in diagrams B and C, attached. (*In Map Pocket.*)
   For corps artillery units available for counter-battery calls see Table 2, attached.
2. The 2d FA Brig, reenforced by the 7th FA Brig and the 3d TM Btry will put down a 4-hour preparation and assist the infantry advance with a rolling barrage and successive concentrations of fire.
3. (a) The Eastern LA Grouping, Col E commanding,, and consisting of the 4th LA and 19th LA, will support the 3d Inf Brig on the right.
   (b) The Western LA Grouping, Col W commanding, and consisting of the 5th LA and 20th LA, will support the 4th Inf Brig on the left.
   (c) The HvA Grouping, Col H commanding, and consisting of the 6th HvA and 21st HvA will support both infantry brigades.
   (d) The 3d TM Bty is attached to the divisional artillery until H hour plus ½ hour. It will assist with gas, and in the destruction of barbed wire entanglements in front of the Red first position. For objectives and schedules of fire see Diagrams B and C.
   (x) (1) During the preparation the rate of fire will be the maximum hourly rate for all guns.
   Rate during the rolling barrage: field guns 2 rounds per gun per minute; howitzers ½ round per howitzer per minute.
   (2) Four accompanying guns will be furnished by each light artillery grouping, and as soon as the Red second position has been reached, one infantry battery will be attached to each infantry regiment.
   (3) The artillery preparation will begin at H hour minus 4 hours. For objectives and schedules of fire see Diagram B, attached.
   (4) Beginning at H hour minus 10 minutes a standing barrage will be placed on the XX line, Diagram C. All 75's will participate except Btry A 19th LA, which

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will place smoke concentrations beyond the barrage line as desired by the CO Tank Bn. The barrage will be lifted in accordance with the schedule on Diagram C. When the barrage has reached the OO line, the 4th LA and 5th LA will place successive concentrations in front of the infantry advance. (See Schedule on Diagram C.) The 155 mm howitzers will place successive concentrations beyond the barrage line. For objectives and schedules of fire, see Diagram C.

(5) Forward movement of the divisional artillery will be by battalion with brigades moving alternately.

For starting points, routes and general location of the second positions, see Diagram A, attached. (*In Map Pocket.*)

For schedule of movement from the initial positions see Table 1, attached.

(6) Two flights of the 4th Obsn Sq will work with the divisional artillery.

Balloon No 25 will observe for the 6th HvA.

Balloon No 26 will observe for the 21st HvA.

(7) Non-persistent gas will be used. For objectives see Diagram B, attached.

The use of gas on any objective will cease at least one hour before the attack is scheduled to reach that objective.

4. (a) Stations for slightly wounded:
Initial position at * * * and * * * .
Second position at * * * and * * * .

(b) Ammunition distributing stations will be pushed forward as the attack progresses, first to the BALTIMORE TURNPIKE and then to the HANOVER ROAD.

5. (a) Artillery signal communications: see Diagram A and Table 2, attached.
Pyrotechnic signals: no change.

(b) Command posts: see Table 2, attached.

F,
Brig Gen.

Distribution:

1-12 As Annex to Div Order
13 CG 7th FA Brig
14 CO 19th LA
15 CO 20th LA
16 CO 21st HvA
17 CO 4th LA
18 CO 5th LA
19 CO 6th HvA
20 CO 3d TM Btry
21 CO 2d Amm Tn
22 CG 1st FA Brig
23 CG 3d FA Brig
24 CO 1st Bn 69th HvA
25 CO 2d Bn 69th HvA
26-35 War diary, extra, file

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TABLE I

APPENDIX No — TO FIELD ORDERS No —, 2D FA BRIG

1 July, 19

Schedule of Forward Movement from Initial Positions

Hour of departure from A, A' or A (See Diagram A)	Unit	Route	Region of New Emplacement (See Diagram A)	Approximate Hour of arrival
H plus 1:45	1st Bn 19th LA	Eastern	J	H plus 2:35
H plus 1:45	1st Bn 20th LA	Western	C	H plus 2:30
H plus 2:10	2d Bn 19th LA	Eastern	H	H plus 2:55
H plus 2:15	2d Bn 20th LA	Western	D	H plus 3:00
H plus 2:35	1st Bn 21st HvA	Eastern	E	H plus 3:10
H plus 2:35	2d Bn 21st HvA	Western	F	H plus 3:10
H plus 2:55	1 Bn 4th LA	Eastern		(Infantry Batteries)
H plus 2:55	3d Bn 21st HvA	Western	G	H plus 3:30
H plus 3:10	1 Bn 5th LA	Western		(Infantry Batteries)
H plus 5:15	1 Bn 4th LA	Eastern	M	H plus 7:20
H plus 5:35	1 Bn 5th LA	Western	N	H plus 7:50
H plus 5:55	1st Bn 6th HvA	Eastern	P	H plus 8:10
H plus 6:15	2d Bn 6th HvA	Western	R	H plus 8:30
H plus 6:35	3d Bn 6th HvA	Eastern	S	H plus 8:50

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TABLE II

APPENDIX No — TO FIELD ORDERS No —, 2D FA BRIG
1 July, 19

Table of Artillery Organizations, Command Posts, Call Letters and Panels.

(a) DIVISIONAL ARTILLERY
Brig Gen F (assisted by Brig Gen G)
CP at KEEFAUVER
Call letter: XA Wave length: 350 m Panel: White rectangle

LIGHT ARTILLERY

West Grouping (Col W Commanding)		East Grouping (Col E Commanding)	
5th LA Col W Call letter XA1b	CP KROMER Panel No 11	4th LA Col E Call letter XA1	CP MILLER Panel No 1
2d Battalion Major A CP---------- Call letter XA3b Panel No 31	1st Battalion Major B CP---------- Call letter XA2b Panel No 21	2d Battalion Major C CP---------- Call letter XA3 Panel No 3	1st Battalion Major D CP---------- Call letter XA2 Panel No 2
20th LA Col S Call letter XA1c	PC KROMER Panel No 12	19th LA Col R Call letter XA1a	CP MILLER Panel No 10
2d Battalion Major E CP---------- Call letter XA3c Panel No 32	1st Battalion Major F CP---------- Call letter XA2c Panel No 22	2d Battalion Major G CP---------- Call letter XA3a Panel No 30	1st Battalion Major H CP---------- Call letter XA2a Panel No 20

HEAVY ARTILLERY GROUPING
(Col H commanding)

6th HvA Col H Call letter XA1d		CP KEEFAUVER Panel No 13
3d Battalion Major I CP---------- Call letter XA4d Panel No 43	2d Battalion Major J CP---------- Call letter XA3d Panel No 33	3d Battalion Capt K CP---------- Call letter XA2d Panel No 23
21st HvA Lt Col X Call letter XA1e		CP KEEFAUVER Panel No 14
Major L CP---------- Call letter XA4e Panel No 44	Major M CP---------- Call letter XA3e Panel No 34	Major N CP---------- Call letter XA2e Panel No 24

TRENCH MORTAR BATTERY (ATTACHED)
3d Trench Mortar Battery, Capt T, CP at ---------- (12-6" SN)

(b) Corps artillery available for counter-battery calls:
1st Bn 67th HvA (155 GPF) Major V, CP at ----------
Call letter ------
2d Bn 69th HvA (6" Guns), Major W, CP at ----------
Call letter ------

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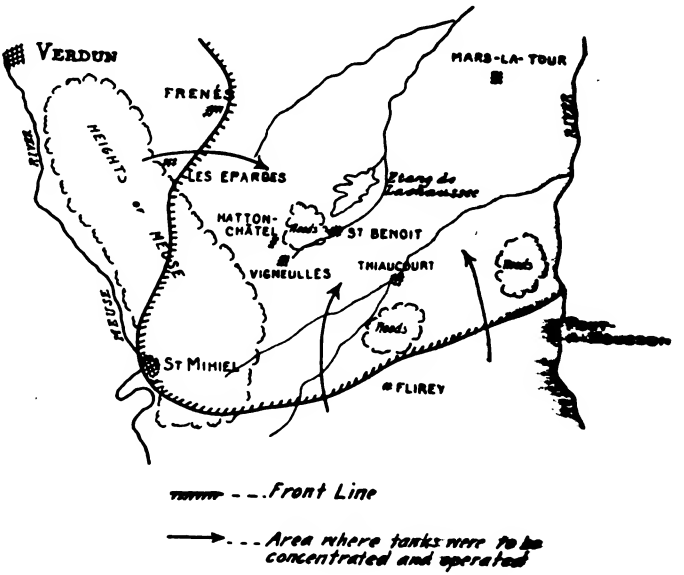
(c) Artillery of adjacent divisions:
1st Div, Brig Gen X, CP at _____
Call letter _____
3d Div, Brig Gen Y, CP at _____
Call letter _____

Tanks

The World War must be turned to in order to find examples of the use of tanks. Plates (a), (b), (c) and (d) illustrate a few strategic concentrations of tanks in favorable sectors, for rapid penetration with decisive strategic missions in view.

(a) THE CONCENTRATION OF TANKS PLANNED FOR THE ST. MIHIEL OFFENSIVE



In the present situation a double employment of tanks on the Blue western flank is being attempted. The strategic mission of the attack demands a concentration of tanks on that flank, while the tactical consideration of the penetration east of Gettysburg requires an assignment of tanks to insure depth of penetration in the time allowed.

The whole army front must be reconnoitered prior to deciding on a plan for concentrating the tanks, which are

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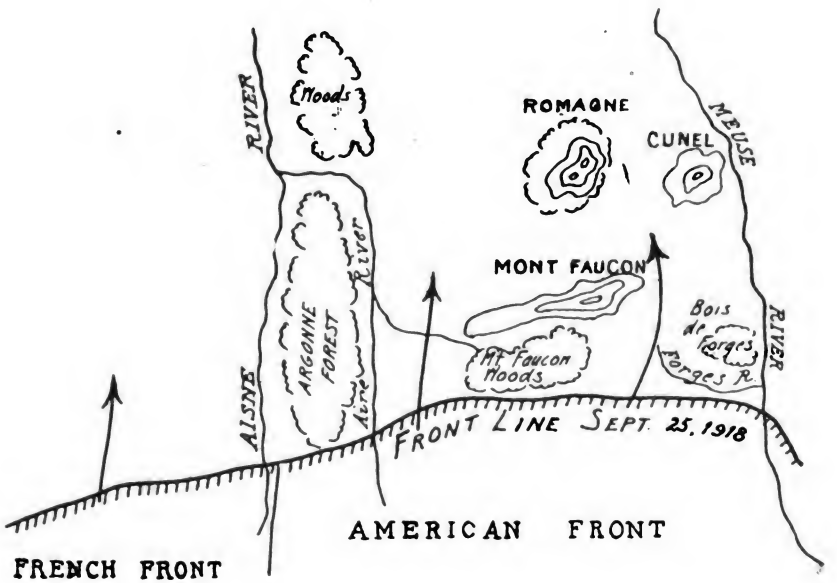
(b) In the Meuse-Argonne Offensive



NOTE: Arrows indicate parts of front where penetration was planned by Army and where tanks were concentrated

employed in the most favorable sectors of the parts of the front selected for the main attack.

The type of tanks, number to be employed and allotment to higher units, such as to any one army in a group of armies or to a corps in the army, is determined at the highest headquarters concerned. A brigade of tanks of three light battalions is assigned to the 1st Corps in the present case. Prior to this assignment, the tank units of this brigade have been operating on other sectors in minor operations and all have received training with infantry.

The corps staff issues the plan for the employment of the tank brigade. The plan is the result of a conference between the corps staff and the tank brigade staff. The tank staff must consider the following points at this conference:

(a) Tank units must be kept intact as far as possible.
(b) The terrain must be favorable for an advance, and offer good departure position and routes up to the "jump-off."

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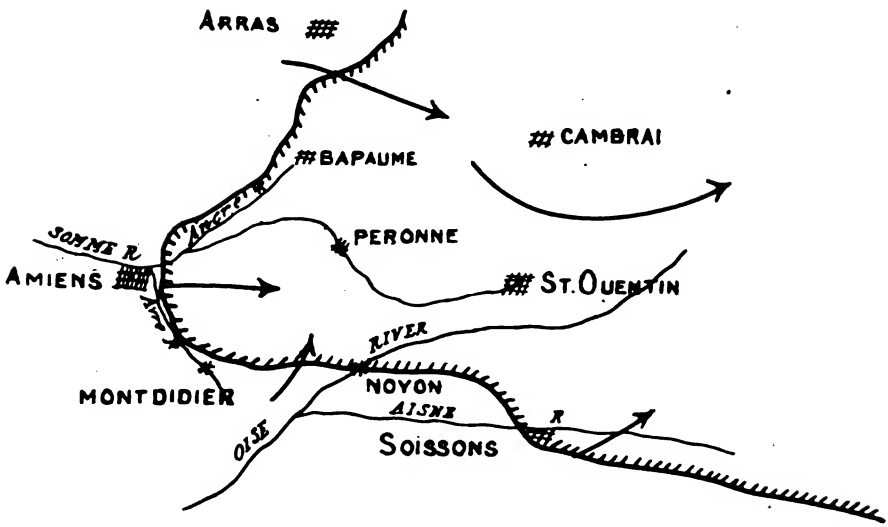
(c) In British and French Offensives of 1918
Showing general concentration



(c) There must be concealment for the tanks in the area, so as to preserve secrecy.

(d) How will the tanks be allotted within the corps?

(e) Will each front line division be allotted tanks?

(f) Will all of the tanks be employed on the first day?

(g) What special troops are needed by the tank brigade for special work?

(h) What assistance do the tanks need from artillery, air service, or cavalry?

(i) The supply question of the tank units as to gasoline and oil, so as to permit continuous action.

(j) The approach march of the tank units to fit in with the infantry plan.

Prior to a decision for the allotment of tanks, the following points are taken up in the estimate of the situation:

(a) The corps is to penetrate an organized zone of three positions to an extent of more than 8000 yards in one day, hence at least 8 hours of continuous tank fighting can be expected after "H" hour.

(b) The attack is part of a double enveloping attack with the main blow coming from the northwest of Gettysburg.

(c) The main efforts of the corps are towards Two Taverns —Granite Hill, with exploitation after reaching the line Brush Run—Hunterstown.

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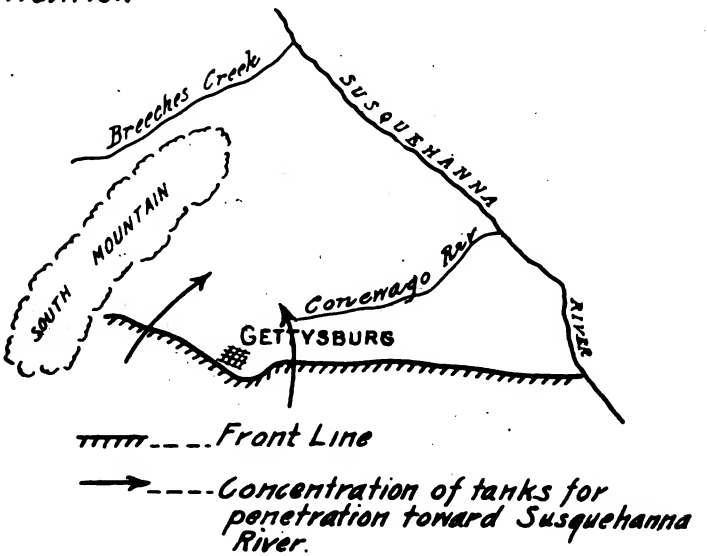
(d) THE PROBABLE CONCENTRATION FOR PRESENT SITUATION



(d) The center division, which is the 2d Division, is the division designated to press through on this part of the front and is to be assisted by the other divisions. As the advance progresses it is through the sector of this division and the one on its right that the reserve divisions will probably be maneuvered and employed.

(e) From the point of view of terrain, the sectors of the 1st and 2d Divisions are the most favorable places for the employment of light tanks. The obstacles are few and good progress may be made throughout the area.

(f) All streams are fordable for light tanks until the Conewago Creek is reached, and no unfavorable wide trenches exist in the area in front of the 1st Corps.

The decision of the corps staff is to assign one battalion of light tanks to the 1st Division, and one to the 3d Division, and to hold one in corps reserve.

The corps order would contain the following paragraph:

* * * * * * *

(f) Tanks:

(1) Allotment:

(a) 301st Bn Light Tanks will support the 2d Div. It will arrive in vicinity of HEDGEGROVE and will report to CG 2d Div on D day minus 2 days.

(b) * * * *

(c) * * * *

Note: Here would be given the assignment of other battalions to other divisions or to corps reserve.

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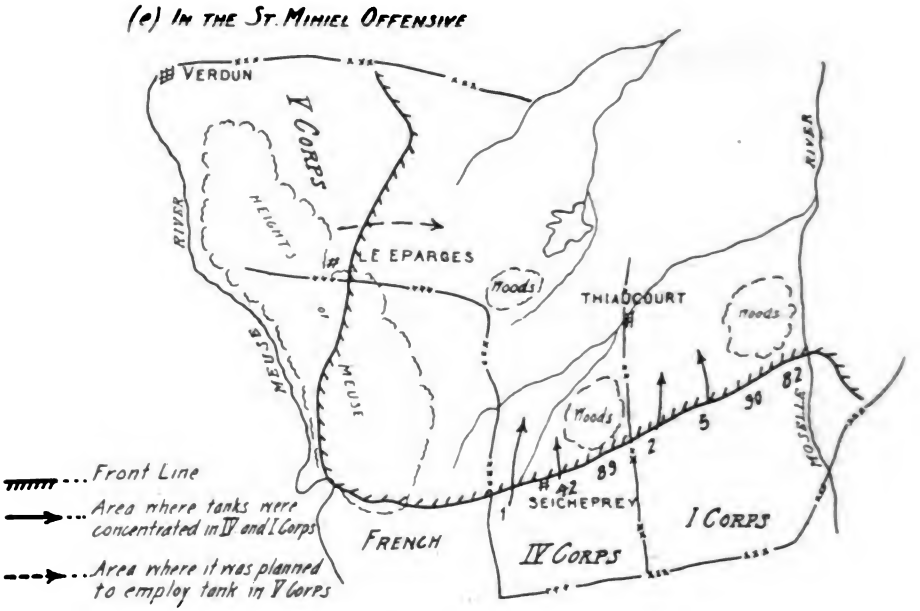

(2) 1st Tank Brig will assemble in vicinity of PINEY CREEK on D day minus 3 days and will operate in the direction TWO TAVERNS and GRANITE HILL. Tanks will be used in the assault on D day and in exploitation after that day.
(3) For details see annex, "Plan for use of Tanks."

* * * * * * *

Tanks will arrive in this area by rail at Piney Creek station. In an emergency tanks can be transported under their own power, but they should not cover more than 5 miles prior to entering the battle. Generally they will come for short distances by truck or trailer.

Tanks are allotted to armies or corps by tank divisions where favorable conditions permit a rapid advance. This is illustrated in plates (e), (f) and (g).

In the employment of tanks by a corps or a division, the attack at a particular point must be co-ordinated with the attacks of units on the right and left, as well as with those of units within its own sector. Matters that are generally considered are protection from anti-tank defense, protection from hostile observation, and assistance in the attack from airplanes and artillery. These points must be co-ordinated by the corps or division staff prior to the insuance of the attack order and annexes. Special troops are

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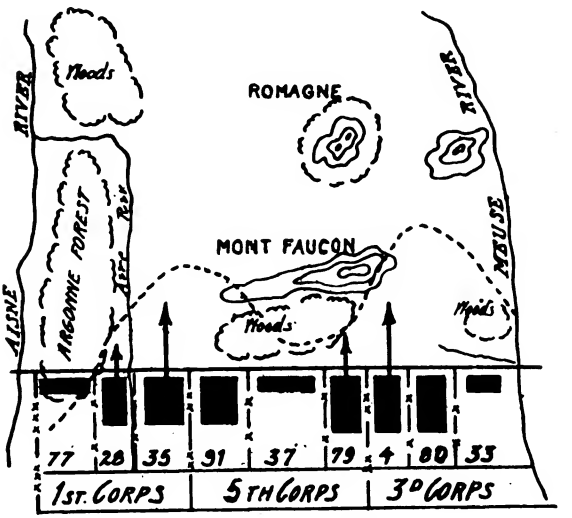
(f) In Meuse-Argonne Offensive



..... Shows penetration planned

——▶ Shows where tanks were allotted within corps.

often required to assist tanks in special situations, such as crossing canals, rivers, preparing bridges, ramping railway crossings and similar work.

The tank brigade is responsible for the supply of the tank units under its command. It must arrange for and insure a supply of gasoline to the tanks prior to and during the action.

The 301st Tank Battalion has been assigned to the 2d Division. This battalion is fully organized and consists of three fighting companies of 13 tanks and one wireless tank each. Each company is subdivided into three tactical units, called platoons, of five fighting tanks each. The remaining section. The primary use of this section is for training prior to action, so as to permit of keeping the fighting platoons in good mechanical condition, but in combat it is generally used to furnish reserve tanks and replacements.

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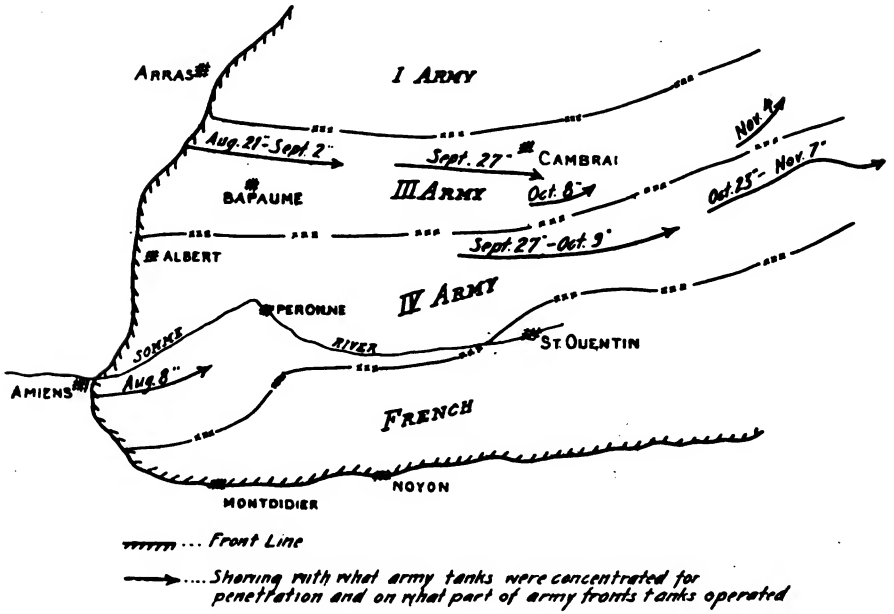
(g) Showing Allotment of Tanks in British Offensive in 1918 on Various Army Fronts



These headquarters sections are often assembled as a battalion reserve. As such they may be used for tactical purposes the same as other units within the battalion. In this problem part of them will be used as tactical units at the beginning of the action, and as units for replacements after they have fulfilled certain missions.

In the estimate of the situation of the 2d Division by the tank brigade commander, he has considered the following eight tanks of each company constitute the headquarters points:

(a) His battalion has a front of 3000 yards and is to penetrate to a distance of 8000 yards.

(b) His tanks will be protected by a barrage from H hour until about H hour plus 2 hours, when the artillery will concentrate on tactical points.

(c) Within the sector of the 2d Division there are no streams impassable for his tanks, no dense woods, and in general the ground is favorable for good maneuvering for his tanks.

The tank battalion commander has considered all possible plans for the use of his tanks in the 2d Division sector. Some of these plans are shown in plates (h), (i), (j) and

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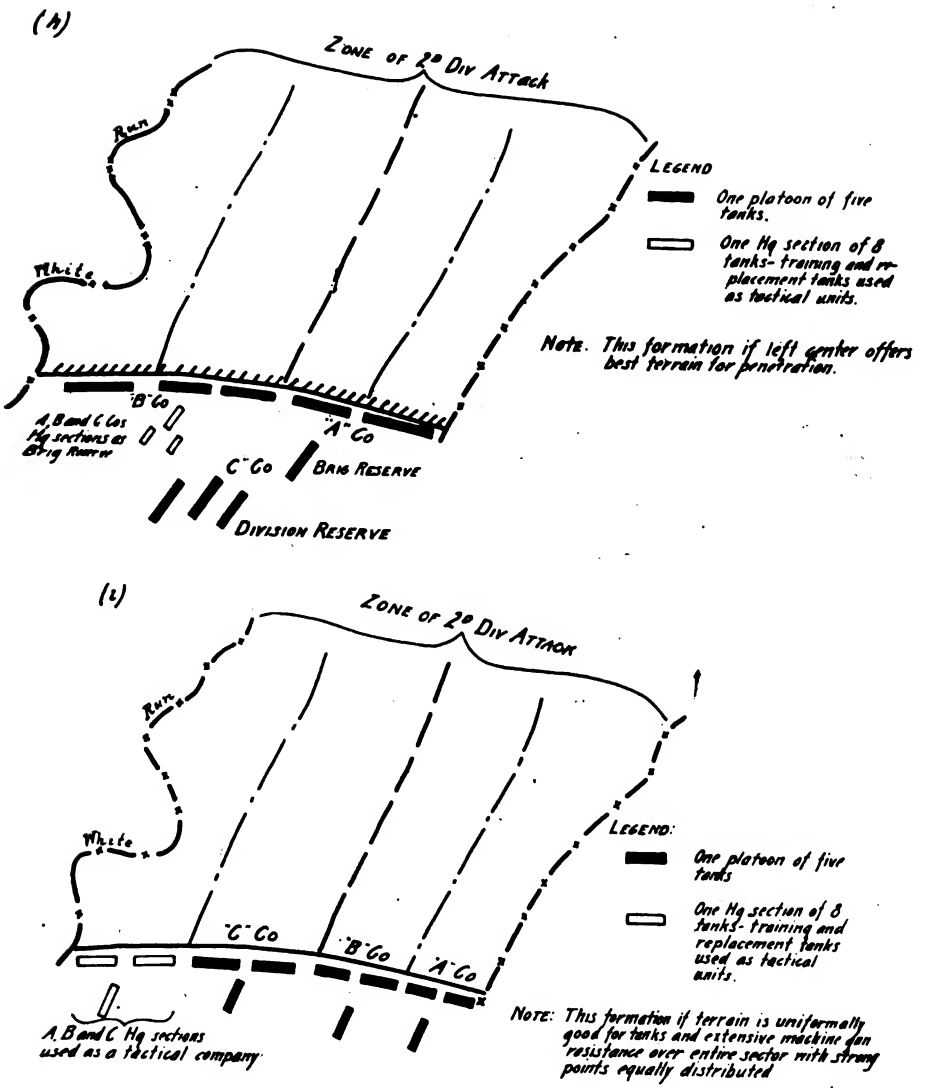

(k). The commander of the tank battalion suggests (j) as the plan of action to be adopted by the division commander with the following requests:

(a) That hills 487, strong point north of M. Fisco farm, woods in vicinity of road junction 546, strong point at 354.0—743.5, St. Mary's Church, line of woods in vicinity of 355.0—745.0

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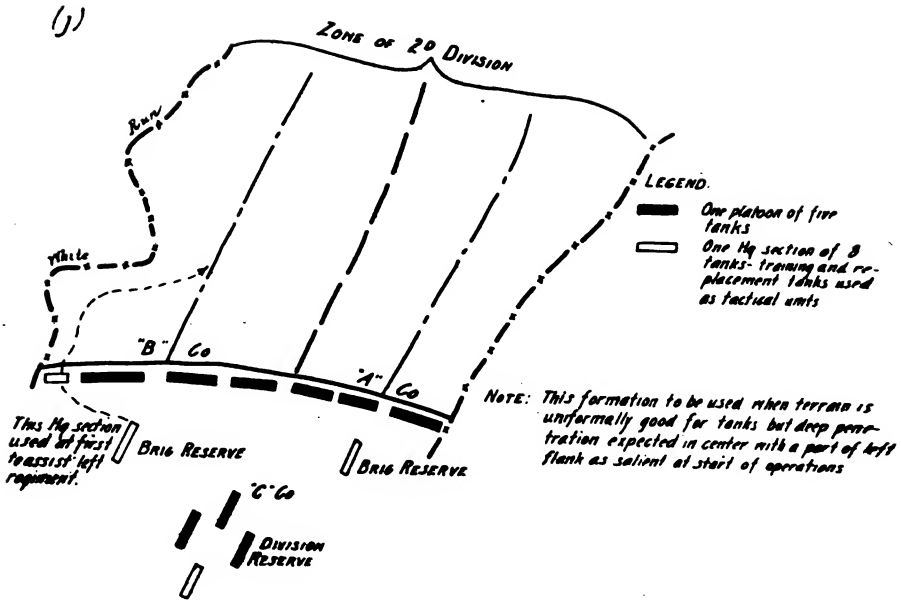

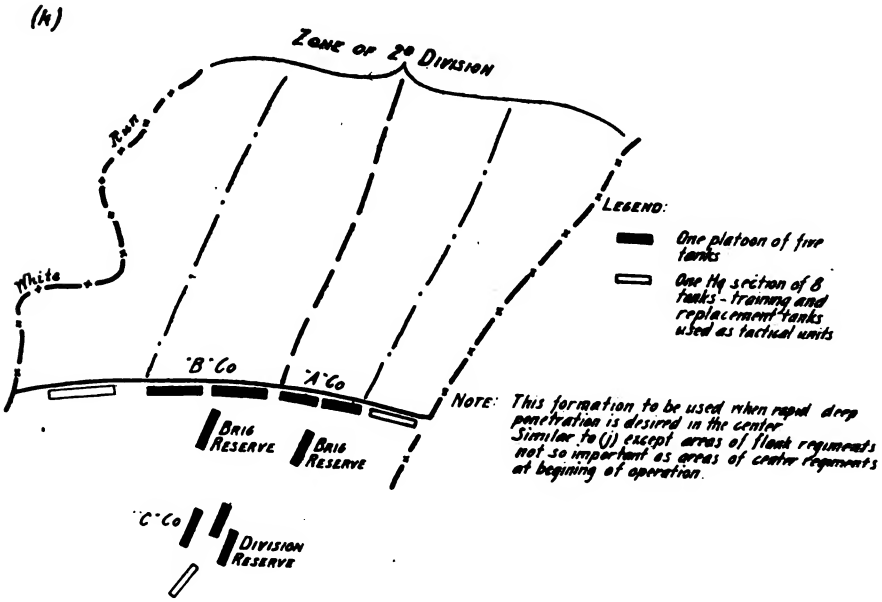

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and 356.0—744.0, ridge east of R. Schwartz farm, woods in vicinity of 357.0—736.8, ridge 571, Granite Hill and ridges adjoining be screened from observation for the tanks and infantry until these points are outflanked or passed.

(b) That the observation squadron assist during the whole operation by searching for anti-tank defenses, hostile tanks, special guns, or batteries being sent forward by enemy for anti-tank purposes.

(c) That the artillery assign a special battery for special assistance and defense of tanks.

(d) That air service flights or machine gun fire cover approach march of tank on night of D day minus 1 day, between the hours H hour minus 6 hours and H hour minus 4 hours, so as to maintain secrecy as to use of tanks. This will probably not be needed after that, since bombardment commences at H hour minus 4 hours.

(e) That certain roads and routes of approach for tanks be made available between such hours as will be necessary to place tanks in assault positions.

(f) That trucks with gasoline be given use of forward roads to specified points after H hour plus 2 hours, and that these trucks have equal priority on roads with artillery ammunition of the division.

The division staff approved this scheme for the plan of tanks and included the paragraph concerning tanks that appears in the division field order.

The commander of the tank battalion issued the following plans for the use of tanks:

ANNEX No— TO FIELD ORDERS No—, 2d DIVISION

TANKS

301st Tank Bn,
MT. JOY CHURCH, MD.,
1 July 19, 11:00 AM.

FIELD ORDERS
No —

Maps: Gettysburg-Antietam Map, 1:21120.

1. No change in situation of enemy.

Our army and corps attack on D day at H hour.

The 1st Div is on our right and the 3d Div on our left, with the 4th and 5th Divs in reserve of the 2d and 1st Divs respectively.

The 2d Div will attack on its present front to penetrate the enemy's defensive zone between MORITZ S. H. and GRANITE HILL and drive him into the open.

The 302d Tank Bn supports the 2d Div. The 303d Tank Bn is held in corps reserve.

2. The 301st Tank Bn is attached to the 2d Div to support its advance.

Zone of action of 2d Div:

Eastern boundary: NORTON (inclusive)—C. H. KING (inclusive)—TWO TAVERNS (exclusive)—M. RUDISH (inclusive)—RJ 529 (inclusive)—farm house 1100 yards northeast of 529 (inclusive)—LAWRENCE (inclusive)—orchard 500 yards northwest of M. FINCK (exclusive)—

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RJ 572 (inclusive)—RJ 582 (inclusive)—farm house 300 yards southeast of 567 (inclusive)—CR 552 (inclusive)—CR 506 (inclusive).

Western boundary: ROCK CREEK—WHITE RUN (both inclusive)—GRANITE HILL (exclusive)—farm house 1300 yards south of CR 585 (exclusive).

Boundary between brigades:

Eastern point of the woods 1000 yards southwest of D. F. PLANK—CR 491—the 525—516—530—562—GULPENS—586 road—CR 632, all to the right brigade.

3. (a) (1) Co B 301st Tank Bn is attached to the support of the 4th Brig. In the main attack 2 plats will be assigned to right regt, and 1 plat to left regt. Co B Hq reserve will act as brig reserve, and will assist left regt in reducing hill 487. Zone of action same as for 4th Brig.

(2) Co A 301st Bn is attached to the support of 3d Brig. In the main attack 1 plat will be assigned to right regt, 2 plats to left regt. Co A Hq reserve will act as brig reserve. Zone of action same as for 3d Brig.

(3) Co C 301st Bn will remain in division reserve under orders of CO 301st Tank Bn. This company will retain communication with the division advance command post and follow the general direction of the axis of the division in rear of the right regt of left brig according to following schedule:

Head of column will arrive vicinity of CR 491 by H hour plus 1 hour 20 minutes.

Head of column will arrive vicinity of CR 525 at H hour plus 3 hours 5 minutes.

Head of column will arrive vicinity of CR 516 at H hour plus 5 hours 12 minutes.

(b) (1) Btry A 19th LA will be detailed for special anti-tank duty during D day. Special arrangement will be made with commander of this artillery by CO 301st Tank Bn by conference prior to D day.

(2) The following points will be screened by smoke while tanks are under observation from same: TWO TAVERNS, hill at 357.0—747.0, hill at 359.0—749.0, BONNEAUVILLE, GRANITE HILL, hill 487, strong point north of M. FISCO farm, woods in vicinity of 546, strong points at 354.0—745.0 and 356.0—744.0, ridge east of R. SCHWARTZ, farm and woods in vicinity of 357.0—746.8, ridge 571, and GRANITE HILL and vicinity.

(c) The 4th Obsn Sq will observe enemy's territory immediately in front of advance of infantry for hostile anti-tank guns, batteries being run forward, hostile tanks, or troops forming up for counter-attack. Report of observation of such hostile movements will be made by wireless to radio tanks at forward communicating centers of brigades and division.

(d) One plat 2d Engrs will be attached to 301st Tank Bn on D day minus 1 day to assist tanks in crossing CONEWAGO RIVER. CO 301st Tank Bn will issue the necessary instructions to this platoon.

(x) (1) All company and platoon commanders of tank units in support of front line regiments and battalions will report at once in person to the infantry commander of unit to which assigned for conference and arrangement of details of operation.

(2) For the main attack all units will on night of D day minus 1 day reach the assault position of infantry by H hour minus 2 hours.

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(3) Magnetic compass bearing, N 25° E.
(4) Rallying points for 301st Tank Bn, points 354.5—744.6, 355.5—746.8, 357.2—750, 358.9—753.8. These will be established in order named as advance progresses.
(5) Battalion reconnaissance officer will furnish each platoon of tanks with necessary maps, oblique photographs, and time table for the sector in which they will operate.
(6) Rate of advance: 100 yards in 2 minutes to the hostile front lines, and then 100 yards in 4 minutes to include the Baltimore Turnpike. Halt of 25 minutes when second position has been taken.
(7) Red second position will be taken by the drive of the first line battalions.
(8) The advance from the Red second position will commence at H hour plus 4 hours 40 minutes. Assaulting battalions will be pushed with the utmost vigor. They will be preceded by scouts pushed well to the front. Artillery concentrations will lift prior to schedule on signal from assault battalion commanders that they are ready to attack. The artillery firing the concentrations immediately in front of that infantry battalion will lift to its next targets.

4. (a) (1) Gasoline, ammunition and other supplies will be obtained through brigade supply officer at HEDGEGROVE. A forward dump will be established in vicinity of woods south of the J. SMITH farm.
(2) Dumps at the advance rallying points will be established as soon after H hour as practicable at the following points, 354.5—744.5, 355.5—746.8, 357.2—750.0, 358.9—753.8.
(b) Battalion repair units will report position of disabled tanks through rallying points. Brigade repair park in vicinity of HEDGEGROVE.
(c) Station for slightly wounded: CR 459.

5. Plan of signal communications:
(a) (1) Forward rallying points on being established will be connected by telephone to division axis of signal communications.
(2) Pigeon messages will be sent by tank platoons on reaching second and third defensive positions, on capture of TWO TAVERNS, MT. VERNON SCHOOL, GRANITE HILL, GULDENS, MORRIS SCHOOL, and other important points beyond. Corps Pigeon Loft No 20, in vicinity of HEDGEGROVE, will issue necessary pigeons.
(3) Radio tanks of Cos A and B will follow their brigade axes of communications under direction of brigade commanders.
(b) Radio Tank of Co C will remain with tanks in division reserve.
(c) Battalion radio tank will follow division axis of communications and will take position in vicinity of the forward communication center of the division under orders of tank battalion commander.
(d) (1) Radio call letters:

301st Tank Bn	a m	2d Div	r t
Co A 301st Tank Bn	a l	3d Brig	r n
Co B 301st Tank Bn	a c	4th Brig	r b
Co C 301st Tank Bn	a g	Infantry plane	r c

(2) Wave lengths.
Division net, 850 meters.

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Tank Bn net, 500 meters.
Airplane net, 350 meters.

(e) All signal tanks will consider themselves as transmitting stations for infantry.

Axis of signal communications:

2d Div:

J. SMITH—D. F. PLANK—546—TOPPER—525—530—562—GULDENS—573—585 road.

4th Brig:

D. F. PLANK—491—ST. MARY'S CHURCH—425—473—536—530—526—GULDENS—573—585 road.

3d Brig:

J. SMITH farm—RJ 515—MT. VERNON S. H.—GULDENS.

Command posts:

(a) 1st Tank Brig at corps command post.
(b) 301st Tank Bn at 2d Div command post.
(c) Cos B and A at Hq 4th and 3d Inf Brig command posts, respectively.
(d) Co C at forward communication center of division.

By command of Maj Gen A,

X,
C of S.

Authenticated by
X,
Maj, Tank Corps.

Distribution:
Same as field order of division and to all tank units to include companies.

NOTE:—"Diagram Showing Tactical Routes for Tank Battalion in an Attack Against a Defensive Zone," in map pocket.

The tank brigade commander has issued an order or memorandum of instruction to the various units of his tank brigade, giving the administrative details to co-ordinate all his units, certain information to his own troops, and instructions for the operation of those brigade units that are not attached to divisions.

The employment of Company B, 301st Tank Battalion, with the 4th Brigade, 2d Division, will be followed.

The tank annex to the field order required the captain of this company to have a conference with the commanding officer of 4th Infantry Brigade prior to the hour of the attack. At this conference the brigade commander gave instructions as to the tactical use of the tank company and made necessary arrangements for a conference between the officers of this company and the commanders of the appropriate infantry units in his command. The infantry brigade commander accepted the general tactical employment of tanks as planned by the division, but gave instructions in detail as to the method of attack within his own brigade.

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At the conference between the officers of the tank platoons, the regimental commanders to whose regiments they were attached, and the commanders of the assault battalions, the following points were discussed and detailed plans adopted to insure proper co-ordination.

(a) The route to and time of arrival of tanks at the "jump-off" line.

(b) The assistance that the infantry will give by using machine gun fire to drown the noise of approaching tanks.

(c) The manner in which the tanks will precede the infantry at the jump-off, and detailed instructions as to their first objectives, the paths they will make in wire and the general direction in which they will move.

(d) A detailed plan of the *attack* for as far ahead as it would be advisable to attempt to work out prior to the attack.

The tank commanders have to consider, in addition to the employment of the tanks in attack, the questions of salvaging and repairing disabled tanks, the supply of gasoline, oil and water to all of their units, the preparation of time tables, airplane photographs, and the arrangements necessary to make sure that each tank unit will arrive at the "jump-off" line.

An Infantry Brigade

The discussion will be concluded by a consideration of the actions of an infantry brigade in the attack against the Red defensive zone.

It might seem from paragraph 377, *Infantry Drill Regulations*, that the brigade commander in an attack of this character has very little to do.

However, it will be seen that he has indeed quite a problem. His orders must be carefully drawn to employ his command to the best advantage and within its capabilities, and he must study the latter in great detail. In an attack of the kind under consideration there is opportunity to make detailed arrangements beforehand. One of the principal duties of the brigade commander is to represent the attacking infantry and be its principal spokesman at any conferences that lead to the preparation of the division orders. He must therefore be able to state accurately the capabilities of the infantry performance under any probable conditions that may arise in the attack.

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The mission of the 4th Brigade is taken from pars. 2 and 3 (b) of the order of the 2d Division, and is as follows:

> "To attack on the left of the 2d Division, penetrating the enemy's defensive zone between GULDENS and GRANITE HILL (both inclusive); and to assist the progress of the 3d Brigade by flanking hostile strong points on or near the brigade boundary."

Looking into the situation of the enemy, the brigade commander should consider the enemy's territory, his general attitude, his strength, dispositions, order of battle, occupation of sectors, habits and works.

Information as to some of the points is lacking in the problem, but some of the ways in which they effect its solution will be suggested.

The Blues are in hostile territory. They will not have any compunction about the damage done to property, villages, works, etc., unless there is a military reason for sparing them.

Stabilization has existed on this front for two months. Since the amount of work that the Blues have been able to accomplish is known, it can be estimated closely what the enemy has been able to do. If anything, he has done a little more than the Blues, for the situation shows that his army is strategically and tactically on the defensive. Oblique and vertical airplane photographs have given a great deal of detailed information as to his positions, works and habits, and all of this should be accurately shown on maps. No concrete work has been discovered to date. His front lines, some of his intermediate strong points and the lines of resistance of his main positions, of which there are three, have all been definitely located. These lines are apparently continuous lines across the entire brigade front. It can be assumed that his wire and accessory defenses are strong.

The brigade commander is interested in knowing the enemy's strength in this part of his front, principally for the reason that it will throw light on whether or not fresh resistance may be expected on his successive positions.

The number of divisions and their quality, which the enemy may be able to engage within a certain time on this front is more a problem for the division and the higher units. His dispositions on the immediate front of the brigade are of immediate concern. How many battalions has he in his

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first position, how many in his second position? Where are his headquarters? Where are the boundary lines between his units? They are usually weak points in the cooperation of his defense. What is the depth of holding of his regiments? Will the Blue first line battalions be able to break through the zone of his front line command? Where are the points from which counter-attacks may be expected, and by what approaches?

This data was not given in the original situation but was introduced in the artillery discussion and may be utilized here.

Looking at the enemy's dispositions it is seen that a division command post is located near crossroads 530. (See special map in map pocket.) A brigade command post is at St. Mary's Church. A regimental command post is near road junction 515. The regimental command post near St. Mary's Church is probably artillery in advance of his second line. Battalion command posts have been located at M. Fiscel and Topper. These two battalions seem to be the garrison of the Red outpost system from Rock Creek to about Y line 355, a strong garrison surely. The third battalion of this regiment is probably in reserve in the shelters in the Fiscel orchard and the woods north of Little's Run. The regimental command post north of road junction 535 on the second position will probably belong to the same brigade.

Other regimental and brigade command posts are at Two Taverns, on the front of the 3d Brigade. Identifications of prisoners would probably have shown that this regiment belonged to the same Red division. It could therefore be deduced that the enemy was holding with two brigades, each with a regiment in line and a regiment on and in rear of his second position. The regiments in line appear to have two battalions in the outpost position and one in reserve.

The enemy's reserves are probably in the shelters west and north of J. Schwartz. The best routes for them to use for counter-attack are the ravines that lead to the south.

Known machine guns are shown on the sketch. The brigade commander will have checked over the artillery plan very carefully to see that they are all taken care of in the

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preparation and in the concentrations after the advance starts. If any are left out he will want to cover them with his auxiliary weapons.

The enemy's known observation posts in his forward system are shown on the sketch. Of these the best for observing the Blue assembly or any other unusual movement in the forward zone is the one near 491. This is located in the zone of the opposing divisional artillery. It can therefore be expected that the enemy's barrages and counter-preparation will come down with a minimum of delay. This suggests accelerating the movement across "no man's land."

Any new work that is done by the Blues to shelter their formation will probably be observed if it is done prior to the night of D—1 day, even if the weather hinders aerial observation. The advanced elements must therefore be content with the shelter afforded by the old trenches along the creek bottom and such fox holes as they dig after the assembly.

The division order when it first appeared prescribed "our front line trenches" as the line of departure. The objection that the brigade commander had to this was that at points it was nearly 1000 yards to the enemy's front line and that the troops, who would probably jump off in the darkness, would be set very obliquely to their line of advance. By taking the line of the creek these two difficulties are largely eliminated and the shaping of the barrage for the maximum protection of the infantry is facilitated. The assault battalions will be deployed with their leading elements in the old trenches on the creek. This change required the approval of the division commander, which was obtained.

The second line battalions will be formed up in rear of the assault battalions, extending back probably as far as an east and west line through J. Smith, depending largely upon the shelter afforded by the forward trench system.

Reserve battalions, which will be too far back to get across "no man's land" before the enemy's barrage comes down, had better await for it to cease. They can therefore be sheltered along the line Kromer—Keefauver.

The enemy may very easily have small combat groups disposed in shell hole defenses in advance of his front line.

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If his patrolling has been active some of his patrols with automatic rifles may be caught out there. The brigade commander therefore has requested the artillery to bring its barrage down a little before H hour in "no man's land," 150 meters from his advanced lines. Owing to the necessity for the attacking and assault battalions to get over "no man's land" promptly, he has also requested that the barrage lift at the rate of 100 meters in 2 minutes until the troops reach the enemy's front wire, that it slow down in the places where the infantry has known resistance to overcome, and that it speed up where the going will apparently be easy.

The average of 100 yards in four minutes must be maintained, and this rate of advance is so fast that it does not permit of a great deal of play either way. However, the principles of paragraph 380, *Infantry Drill Regulations*, are thus applied as far as is possible in advance.

Practically, the barrage regulates the advance of the infantry, but the infantry knows best what its capabilities of advance are under certain conditions of ground, cover and resistance, and it should supply the data on which the barrage table is initially built. These views may be assumed to have been expressed in a conference with the division and artillery brigade commanders prior to the final drawing of the artillery plan. An examination of the barrage table will show that they have been met in the artillery barrage table as far as is technically possible.

The rolling barrage ceases when the infantry reaches the Baltimore Pike, for reasons that have been brought out in the artillery discussion. By this time a part of the artillery is moving forward. That which is to be employed later as accompanying artillery is pushed out promptly at H hour plus 3 hours 10 minutes.

The advance to the Red second position is to be covered by concentrations of all available supporting artillery.

It is very necessary for two reasons that the artillery know as accurately as possible at what time the infantry believes that it will be able to arrive in position to assault known resistances. These reasons are:

First, so that fire can be lifted promptly.

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Second, so that the artillery can figure on its ammunition allotment.

The expectations of the infantry are shown graphically by the infantry brigade commander to the chief of division artillery. The maximum time which artillery fire remains south of the lines shown in Diagram C of the artillery plan is in accordance with the sketch so furnished. If the infantry desires a concentration lifted sooner it must make use of carefully arranged signals, which must be specified in the plan of signal communications.

From the study of the situation that is involved in making up of the sketch of infantry progress, the brigade commander learns how long his machine guns may fire over head. These guns are disposed so as best to cut off hostile reserves coming up, or inflict casualties on the enemy's front line garrisons that may be trying to escape.

The targets chosen for the brigade guns are indicated in the order. The ravine of the Schwartz house and the woods east of hill 487 are best attacked by machine guns in the zone of the 3d Brigade, whence oblique fire is possible. This request is made by the brigade commander to the division commander, who has this fire incorporated in the division machine gun plan.

The Lott ridge, sheltered from the reach of the Blues by a bend in the creek, affords the enemy an ideal chance to site machine guns on its reverse slope. These guns can take the advance in flank.

The artillery plans to attack this ridge with oblique fire from 75's on the right of the 2d Division sector and with 75's of the 3d Division, but this fire must lift really too early. With the assent of the commanding general, 5th Brigade, the brigade commander plans to put the fire of the Stokes mortars of his left regiment on this ridge. This fire will continue till H hour minus 40 minutes, when the flank of the infantry will have passed by, and the mopping up parties of the 5th Brigade will have advanced far enough to enter the bend.

The actual attack frontage for each regiment is about 500 yards. Where the bends of the river widen the zone of the left regiment, that regiment will be specially directed to mop up the additional ground.

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The boundary line between regiments is drawn to facilitate maneuvering around both flanks of strong points as far as is practicable.

It is apparent that the 3d Division may strike very hard going, particularly when it crosses Rock Creek. It may be necessary therefore to hold a defensive flank on the western boundary for a time, while continuing to push the attack ahead on the right. One additional company of machine guns is therefore attached to the 8th Infantry to accompany its support battalion and be ready promptly to fill any gap on the west. Three companies are allotted the targets indicated above. Their work will have to be co-ordinated with the guns of the division machine gun battalion.

The question of how to handle the accompanying artillery is also one of greatest concern. In this case little use will probably be made of these guns while the barrage protects the infantry, at least as far as the Baltimore Turnpike. From this road to the second Red position the advance is rapid and is covered by heavy concentrations. Their greatest field for the employment of accompanying guns will be in the advance from the second Red position through the third. Then they must positively be up.

The question is, will they get there best and most surely if they come under infantry command at the start and must be moved forward by infantry commanders who are pressed with the other details of combat? Or will it be better to give that task, and that alone, to the artillerymen concerned, after their first fire missions are over; to put the burden on them of having their guns at a certain point at a certain time ready for the continuation of the advance? After consultation with the artillery commander the latter course was chosen for the infantry batteries, but the accompanying guns, which must be far forward to be of any use and which may need the assistance of reserve infantry in getting forward, it was decided to attach to the infantry from the start.

The infantry is expected to be over the second Red position at H hour plus 4 hours 15 minutes. A halt is planned there for 25 minutes for the purpose of allowing time for the verification of communication with accompanying ar-

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tillery and for passage of fresh battalions. An advance of 6000 yards is a long advance for an infantry battalion to make without disintegration. Fresh battalions will almost certainly have to be passed through. To set a time for this and make previous arrangements will save time in the end. It is in no sense a halt on an objective. The enemy's third position is the only objective given for the brigade.

It will be noted that the division set the rate at 100 yards in 4 minutes to include the Baltimore Pike. This will take about 2 hours and 30 minutes. For the remainder of the distance an average of 5 minutes would suit the infantry better. However, this would take 7 hours and 55 minutes, or a total of 10 hours and 25 minutes, a long day's work. Nothing is therefore put into the orders that would operate to hold back the infantry. In figuring the advance for purposes of co-operation with the artillery, the brigade commander allows 4 minutes per 100 yards to the Red second position, and 5 minutes thereafter.

The artillery preparation, and particularly the trench mortar fire, can be counted on to do considerable damage to the enemy's wire. It is not long enough to cut many accurate breaches, however. If the artillery were to breach the wire, at least two battery breaches per company front would be requested. Bangalore torpedoes might have been tried, but the division has not supplied them. There will be light tanks, 13 in front of the left regiment and 5 in front of the right, at the start. These can help considerably. Additional wire cutters for the infantry are, however, the main reliance, and it has been assumed that the division has been able to supply these (1400 would be necessary).

The administrative plan for the brigade is very brief, and it is thought that in this instance it can be embodied completely in paragraph 4 of the field order.

The hour for units to be in their attack positions is not stated because the hour of attack is not known. The relation between H hour and daylight will govern the assembly.

This can be ordered at the same time that H hour is given out.

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Based on the above, the following field orders were issued:

4th Brig,
Near KROMER,
2 July 19, 9:00 AM

FIELD ORDERS }
No 1 }

Maps: Gettysburg-Antietam Map, 1:21120, Gettysburg and Hunterstown sheets.

1. No change in situation of the enemy.
The 2d Div attacks as a part of a general army attack, the 3d Brig on the right.
The 5th Brig (3d Div) attacks on our left, assisting our progress by turning hostile strong points on our left flank.

2. (a) The 4th Brig, reinforced by 1 company light tanks, with its regiments abreast, attacks as the left brigade of the 2d Div to penetrate the enemy's defensive zone between GULDENS (exclusive) and GRANITE HILL (exclusive), and to drive him into the open.

(b) Zone of action, 4th Brig:
Eastern boundary: eastern point of woods 1000 yards southwest of D. F. PLANK—CR 491—the 525—516—530—562—GULDENS—586 road—CR 632 (all exclusive).
Western boundary: ROCK CREEK—WHITE RUN (both inclusive)—GRANITE HILL (exclusive)—farm house 1300 yards south of CR 585 (exclusive).

(c) Line of departure: our advanced trenches along the line of the creek 500 yards north of T. F. KUNS.

(d) Time of attack: D day at H hour.

3. (a) (1) The 7th Inf, reinforced by 2 plats light tanks, will attack on the right of the 4th Brig in column of battalions, to penetrate that part of the enemy's third position within its zone. It will assist the progress of the 3d Brig by flanking hostile strong points on or near the brigade boundary; the strong points north of road junction 525 and at MT. VERNON S. H. in particular will be attacked from the north and west.

(2) Zone of action:
East boundary: east boundary 4th Brig.
West boundary: RJ 428—T. F. KUNS—J. SCHWARTZ—RJ 479—RJ 489—RJ 536—country road 900 yards west of ECKENRODE—orchards at 356.2—749.7 and 357.3—752.0—CR 628 (all exclusive)—western edge of woods 600 yards northwest of GULDENS (inclusive).

(b) (1) The 8th Inf, reinforced by 1 plat light tanks and 1 Co 6th MG Bn, will attack on the left of the 4th Brig to penetrate that part of the enemy's third position within its zone. It will make every effort to assist the penetration of the 7th Inf by turning hostile strong points on the regimental boundary from the north. It will turn from the west the hostile strong points on the ridge east of J. SCHWARTZ. It will use Stokes mortars to assist in neutralizing the enemy's positions on the LOTT ridge from H hour to H hour plus 40 minutes, to aid in the progress of its left flank. It is responsible for the prompt mopping up of the bends in the creek south of LOTT and west of J. FOSTLE.

(2) Zone of action:
Eastern boundary: western boundary 7th Inf.
Western boundary: western boundary 4th Brig.

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(c) Artillery preparation for the attack begins at H hour minus 4 hours.

Gas concentrations will be placed on the patches of woods on hill 487 and 400 yards north of 491, along BALTIMORE TURNPIKE and on the woods just to the north of that pike. Gassing of these places is so timed that our troops may enter.

The attack of the 7th Inf will be supported by the 1st Bn 5th LA and the 1st Bn 20th LA; that of the 8th Inf will be supported by the 2d Bn 5th LA and the 2d Bn 20th LA.

A rolling barrage will precede the infantry attack by 150 yards to include the BALTIMORE TURNPIKE. See table attached (artillery annex).

From the BALTIMORE TURNPIKE to include the capture of the enemy's second position the attack will be covered by successive concentrations by the supporting artillery. See table attached (artillery annex).

One plat 5th LA, will be assigned to accompany the advance of each assaulting battalion. One btry 5th LA will be attached to each of the 7th and 8th Inf regiments for the advance from the Red second position.

Accompanying guns will join the assault battalions by H hour minus 1 hour. Batteries attached to infantry regiments will come under the orders of infantry regimental commanders in position near the woods 700 yards south of R. SCHWARTZ at H hour plus 4 hours 15 minutes. These batteries must be prepared for rapid echeloning forward. CO western LA grouping is charged with the forward movement of these batteries prior to H hour plus 4 hours 15 minutes.

(d) The 6th MG Bn (less 1 company) will assist in the capture of the Red first position by overhead fire from the woods 1400 yards southwest of D. F. PLANK and from near T. F. KUNS.

Targets:

Crossing of LITTLE'S RUN south of J. FOSTLE from H hour to H hour plus 48 minutes.

Crossing of LITTLE'S RUN at 426 from H hour to H plus 1 hour 04 minutes.

Wooded ravine 400 yards east of J. SCHWARTZ from H hour to H hour plus 32 minutes.

This company will push forward to join the brigade reserve near CR 479 at H hour plus 2 hours 30 minutes. (see machine gun annex).

One company 6th MG Bn will be attached to the 8th Inf. Time and place of reporting will be designated by regimental commander.

(e) Two plats Co B 301st Light Tank Bn are attached to the 7th Inf and 1 plat to the 8th Inf to facilitate the advance of the infantry attack.

Co D Hq Reserve will also come under the orders of the CO 8th Inf from H hour to assist in the reduction of hill 487, after which it will revert to brigade control. It will reach the vicinity of the northern edge of the woods 700 yards south of R. SCHWARTZ at H hour plus 4 hours 15 minutes.

Tanks assigned to the 7th Inf will be utilized with a view to having at least one platoon available to assist in the advance from the Red second position.

Radio Tank Co D will move forward with the brigade FCC (arrangements to be made with the brigade signal officer).

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(f) One Bn 8th Inf will be in brigade reserve in woods near KROMER at H hour, to arrive at southern slope hill 487 by H hour plus 2 hours, and vicinity of CR 479 at H hour plus 2 hours 30 minutes. The CO of the battalion will have an information officer with two runners at brigade command post from H hour minus 1 hour.

(x) (1) Rate of advance: 100 yards in 2 minutes to the hostile front lines, and then 100 yards in 4 minutes to include the BALTIMORE TURNPIKE.

(2) Second line battalions will follow assault battalions without distance to the hostile front lines, gaining their distance gradually thereafter.

(3) The Red second position will be taken by the drive of the first line battalions.

(4) The advance from the Red second position will commence at H hour plus 4 hours 40 minutes. Assaulting battalions will be pushed with the utmost vigor. They will be preceded by scouts pushed well to the front. Artillery concentrations will lift prior to schedule on signal from assault battalion commanders that they are ready to attack. The artillery firing the concentrations immediately in front of that infantry battalion will lift to its next targets (see table in artillery annex and plan of signal communications).

(5) Direction of attack: 25 degrees magnetic.

(6) Each regiment will furnish a connecting group of not less than 1 plat infantry and 1 sec MG's, which will follow in general along the brigade and regimental boundaries, keeping generally abreast of the supports of assault battalions. The 8th Inf will designate the officer to command the two platoons on the regimental boundary.

(7) Raincoat will be carried on the fighting pack. Blanket and shelter half will be dumped under regimental arrangements and brought up later.

(8) Each man of assault battalions will carry two grenades.

(9) Extra wire cutters will be issued at the rate of 2 per squad for assault and second line battalions.

4. (a) C and F Tns of infantry regiments will be parked south of the line KEEFAUVER—MT. JOY CHURCH under regimental arrangements. C Tns of assault and second line battalions will not cross the above line before H hour plus 2 hours; other trains not before H hour plus 4 hours. No restrictions on machine gun combat carts. Order of precedence on roads on D day from H hour:

1. Artillery, 2. Ammunition, 3. Signal and medical vehicles, 4. Rolling kitchens, 5. Rations, 6. Engineering material.

(b) Station for slightly wounded: RJ 459.
4th Brig dressing station in woods just south of KROMER from H hour. It will advance later along the LOW DUTCH ROAD.

(c) Prisoners will be collected in regimental groups and sent under small escort to the brigade collection points as follows: Before the capture of the Red second position to RJ 432. After the capture of the Red second position to RJ 525. From these points prisoners will be evacuated by division.

5. (a) Plan of signal communications: (see annex No 1).

(b) Axes of signal communications:
4th Brig: D. F. PLANK—491—ST. MARY'S CHURCH—425—473—536—530—562—GULDENS—573—585 road.

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7th Inf: L. SMITH—491—ST. MARY'S CHURCH—475—same as brigade on LOW DUTCH ROAD.

8th Inf: T. F. KUNS—hill 487—J. FOSTLE—473—ST. MARY'S CHURCH—same as brigade to 536—farms 700 and 1600 yards north of 536—518—626.

(c) Command posts:

2d Div: MT. JOY CHURCH.

4th Brig: COSHUN from H hour minus 4 hours; to be advanced to ST. MARY'S CHURCH when the attack has passed the BALTIMORE TURNPIKE, and later to CR 530 and GRANITE HILL STATION.

3d Brig: J. SMITH; to be advanced later to RJ 515, MT. VERNON S. H. and GULDENS.

7th Inf: eastern point of woods 600 yards northeast of COSHUN from H hour minus 3 hours.

8th Inf: T. F. KUNS from H hour minus 3 hours.

Regimental command posts will be pushed well forward along their axes of signal communications. New locations will be promptly reported.

B,
Brig Gen.

Copies to:

1 CG 4th Brig
2-5 Brig staff
6-7 CG 2d Div
8-10 CO 5th LA (for 5th and 20th LA
11 CO 7th Inf
12 CO 8th Inf
13 CO 6th MG Bn
14 CO Co B 301st Light Tank Bn
15 CG 3d Brig
16 CG 5th Brig
17-20 Spare

(D-2) ATTACK AGAINST A DEFENSIVE ZONE—MAP PROBLEM

LIEUTENANT COLONEL C. M. BUNDEL, Field Artillery, General and Special Situations.
MAJOR L. J. MCNAIR, Field Artillery, Artillery Situation

General and Special Situations

Maps: General Map, Gettysburg-Antietam, 1″=10 miles.
Gettysburg-Antietam Map, 1:21120.

General Situation:

A large Blue force has invaded the United States, captured Washington and Baltimore, and attempted to move north on the general line Havre de Grace—Frederick.

The advance was stopped by the Reds and a stabilized situation resulted. In about three months the Reds have constructed a defensive zone consisting of three positions:

First—along the northern bank of Silver Run—thence west from the vicinity of Green Valley S. H.—thence generally through Bridgeport and to the west.

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Second—generally through Mt. Pleasant S. H.—Oakgrove S. H.—hill 564—Centennial S. H.

Third—through Brushtown—Whitehall—St. Mary's Reformed Church—Round Top.

The Reds are known to have well made entrenchments, strongly protected by barbed wire. The third position, which is not yet quite completed, is apparently the strongest position. The favorable places between these three positions have been organized into strong points. (See special map, in map pocket.)

The Reds are known to be well equipped with machine guns.

Neither side has supremacy in the air, though both are active.

Special Situation (Blue):

The Blue force having been heavily reinforced, the commander decides to make a general attack along the whole front and to penetrate the zone between the Little Conewago and Rock Creek, in order to drive the Reds into the open and defeat them decisively.

The 2d Blue Corps is holding the line from hill 583, inclusive (northwest of Green Valley S. H.) to the patch of woods, exclusive, 1½ miles due north of the Y in Taneytown.

The 9th Division holds the line from the eastern limit of the corps to hill 588, exclusive.

The 10th Division holds from hill 588, inclusive, to the bend in the farm road 1000 yards slightly west of south from Galt. The front line trenches extend from where the farm road enters the patch of woods on the northeastern slope of hill 588, west along the fence, thence to the bend in the farm road. The Red front line trenches are approximately parallel to these and about 200 yards distant from them.

The 11th Division holds from the road bend, exclusive, to the western limit of the corps.

The 12th Division is in reserve, several miles south of Stumptown.

Corps headquarters are at Mayberry.

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10th Division headquarters are at Stumptown.
The 10th Division consists of the following troops:

20th Brigade (84th and 85th Infantry).
21st Brigade (86th and 87th Infantry).
10th Field Artillery Brigade (28th and 29th Light Artillery and 30th Heavy Artillery).
10th Engineers.
10th Field Signal Battalion.
10th Machine Gun Battalion.
10th Observation Squadron.
Trains (at Uniontown, off the map).

Extensive preparations have been made for the attack. Ammunition and supplies have been brought forward, dumps established and other arrangements made.

At 9:00 AM, 1 June, 1919, General A, commanding the 10th Division, received the following corps order for the attack:

2d Corps,
MAYBERRY, MD.,
31 May 19, 11:00 PM.

FIELD ORDERS }
No — }

Map: Gettysburg-Antietam Map, 1:21120.

1. Situation of enemy unchanged. See sketch (in map pocket). Our army makes a general attack on D day at H hour, to penetrate the Red defensive zone and drive the Reds into the open.
2. (a) This corps attacks on its present front, 1st Corps on our right, 3d Corps on our left.
   (b) Mission: to penetrate the Red zone between WHITEHALL and M. RUDISH.
   (c) Corps zone:
   Eastern boundary: hill 583 (inclusive) * * * GEORGETOWN (exclusive) W. E. PALMER (exclusive).
   Western boundary: RJ 470 (inclusive) * * * TWO TAVERNS (exclusive)—MT. VERNON S. H. (exclusive).
   (d) Time ot attack: H hour on D day (to be announced later).
   (e) Line of departure: front line trench.
   (f) Rate of advance: under direction of division commanders.
3. (a) The 9th Div, attacking on its present front, will carry and hold the 726—706—702—681 ridge. It will then, co-operating with the 10th Div, attack the ridges to the north and penetrate the Red zone between * * *
   Eastern boundary:
   Same as corps eastern boundary.
   Western boundary:
   Same as 10th Div eastern boundary, inclusive for exclusive.
   (b) The 10th Div, attacking on ts present front, will penetrate the Red defensive zone between RJ 587W and RJ 584. It also assist the 9th Div, by envelopment, in carrying the ridges between the Red first position and KINGSDALE.
   Eastern boundary: hill 588 (inclusive—PINEY CREEK (exclusive)—RJ 567 (inclusive)—SHOEMAKER—527 road (inclusive)—stream extending north from GIDD (exclusive)—BLAIR (inclusive)—NEWMAN (inclusive).

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Western boundary: GALT (inclusive)—WASHINGTON S.H. (exclusive)—hill 572 (exclusive)—farm house 800 yards southeast of PALMER (exclusive)—D. SPANGLER (exclusive)—unnamed stream east of B. SWARTZ (inclusive)—MEYER (inclusive)—CR 584 (inclusive).

(c) The 11th Div, attacking on its present front, will penetrate the Red defensive zone between RJ 584 and * * and will assist the advance of the 10th Div by flanking strong points.

Eastern boundary:

Same as 10th Division western boundary, inclusive for exclusive.

Western boundary:

Same as corps western boundary.

(d) The artillery preparation will begin at H hour minus 2 hours.

The corps artillery will place concentrations of shell and non-persistent gas on the hostile artillery, the western slopes of the ridge in front of the 9th Div * * Non-persistent gas only will be used and the use of gas on any position will cease one hour before the infantry is scheduled to reach that objective.

Full use will be made of accompanying guns and infantry batteries.

(d) The corps air service will * * (see air service annex).

(e) The 201st Bn Light Tanks is assigned to the 10th Div * * * (see tank annex).

(x) When the enemy's zone is penetrated a vigorous pursuit will be taken up without delay.

4. (See Administrative Orders No —.)

5. (a) Plan of signal communications: (See signal annex.)

(b) Axes of signal communications:

2d Corps:

MAYBERRY—PINEY CREEK—KINGSDALE—WHITEHALL.

9th Div: * * *

10th Div: STUMPTOWN—GALT—CR 559—GIDD—WHITEHALL.

11th Div: * * *

(c) Command posts:

2d Corps: MAYBERRY.

9th Div: * * *

10th Div: 1st, STUMPTOWN; 2d, CR 559; 3d, WHITEHALL.

11th Div: * * *

(d) Forward communication centers:

BASHERE MILL—GALT—KINGSDALE—GIDD—WHITEHALL.

YZ,
Lt Gen.

Copies to:
* *
* *

Required:

(1) General A's estimate of the situation.

(2) General A's formal field order for the attack.

NOTE:—No administrative orders or annexes required.
It is assumed that General A and the Commanding General, 9th Division, have conferred and arranged details as the student considers necessary.

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An Approved Solution

First Requirement:

General A's estimate of the situation.

Mission

General A's mission is to penetrate the Red defensive zone between road junction 587W and road junction 584.

In order that the corps may accomplish its task, General A has the additional mission of assisting the 9th Division in carrying the ridges between the first Red position and Kingsdale.

Enemy

The Reds are on the defensive, but as they have been able to hold the Blues for three months, it is reasonable to assume that their morale is not low. They are defending their country against invaders, so General A looks for very determined resistance when the attack takes place.

As to the strength of the Reds, nothing is given, but from the fact that they have stopped the invading force and held it for a long time, it would appear that they are not much inferior to the Blues. There is nothing to indicate that General A has any unusual number of Reds opposing him.

The Reds have entrenched and fortified a defensive zone extending over about 7½ miles. Their entrenchments are known to be well made and well wired, which will increase the difficulties of the attack. It is also known that they have organized the ground between their three positions, which will mean great opposition from strong points and machine gun nests. The division will therefore have to carry the three positions and the ground between them. The ridges in front of the 9th Division are well prepared for defense on the southern and western slopes, which means that the envelopment of the 10th Division will have to strike them well to the rear.

Our Own Forces

General A has his own division and a battalion of light tanks for the attack. He can expect no assistance from the

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9th Division, at least none south of Kingsdale; in fact, he is ordered to assist that division. He may, should the situation require it, receive some assistance from the 11th Division. Should his division be held up entirely, which does not seem probable, he can count on aid from the corps reserve.

The ground over which the division is to attack is generally flat and open, with a few isolated patches of woods and several small streams which will not be obstacles. The known strong points and defended areas, while calling for severe fighting, do not present any features unusual to a defensive zone. The area to his right front, although in the zone of the 9th Division, is the one that will probably give him the most trouble in his advance. However, this area is not large and can be pretty well covered with heavy fire from artillery and machine guns long enough for his division to pass it. The 9th Division will, of course, keep this area busy on the southern side.

Plans of Action

General A's orders require him to penetrate the Red zone at a certain point, and also by envelopment to assist the 9th Division in carrying the ridges immediately in their front.

An envelopment of this position means that to avoid unnecessary losses the enveloping force must strike the area fairly well to the north.

To accomplish these two tasks the following plans of action are open to him:

1. To attack the western or northwestern part of the ridges before driving forward.
2. To drive forward with part of his division and, at the same time use the remainder to assist the 9th Division by enveloping the ridges.
3. To drive forward with his whole division and, after the ridges have been passed, turn part of his force to make the envelopment.
4. To carry the Red second position with part of his division and then use the remainder, held back somewhat for this purpose, to make the envelopment.

Plan No. 1

Advantages

Uses the whole division as a unit to clear up the situation in front of the 9th Division and thus enable it to ad-

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vance promptly. Co-ordinates the attacks of the two divisions. Avoids having two separate attacks at the same time in the narrow zone.

Disadvantages

Places the secondary mission (to assist the 9th Division) ahead of the primary (to penetrate the Red zone). Uncovers the right of the 11th Division and exposes it to counter-attack. Does not strike these ridges in the most favorable place, i. e., in reverse. Zone is too narrow to use the whole division at one time.

PLAN NO. 2

Advantages

If successful it would accomplish both missions. Co-ordinates the two tasks of the division. Simplifies control. Employs the whole division.

Disadvantages

The division zone is too narrow and too close to the ridges to permit of massing the whole division in it. Exposes the division to unnecessary losses from artillery and long range machine gun fire from the ridges.

PLAN NO. 3

Advantages

Employs the whole division as a unit during the first stage. Simplifies control. Enables the division to keep up with the advance of the 11th Division.

Disadvantages

Same as No. 2.

PLAN NO. 4

Advantages

If successful would accomplish both missions. Co-ordinates the two tasks of the division. The enveloping

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force protects the right of the leading force. The envelopment strikes the ridges in the most favorable place.

Disadvantages

Some loss of control due to having two attacks in different directions. Exposes the enveloping force while it is passing the ridges. (This exposure would be reduced by the artillery concentrations on the ends of the ridges.)

DECISION

To carry the Red second position with part of his force (one brigade) and then envelop the ridges with the other brigade, which follows the first at the proper distance.

Having made his main decision, General A must now make several other minor decisions, such as how he will use his infantry brigades, his artillery, division machine gun battalion, air service, tanks, how much reserve he needs, and like matters.

Infantry Brigades. The width of the division zone, about 1600 yards, is not excessive for one brigade operating over this particular terrain. While there will doubtless be considerable opposition, it does not appear that it will be such that a brigade, properly supported by artillery, cannot advance. When the leading brigade has carried the second position it should have no great difficulty in advancing, with proper artillery support, while the 11th Division advanced on its left and the other brigade made an envelopment a short distance to the rear.

The rear brigade should follow the leading one at such a distance that it will not be involved in any fighting of the latter, nor suffer unnecessarily from fire directed at that brigade. On the other hand, it should not be so far behind that valuable time will be wasted in bringing it up and launching it in its attack. Unnecessary delay would give the Reds an opportunity for a counter-attack against the exposed flank of the leading brigade. The distance should bring it in the vicinity of Washington S. H. at about the time that the leading brigade reached the second position. It could launch its attack without delay. The envelopment should include the Black S. H.—hill 727 ridge to

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be of the greatest assistance to the 9th Division. Since this ridge would be taken in flank its capture should not prove difficult. The envelopment should be carried to include the hill 727—Kingsdale Ridge, as the road on it is the main road for the Red retirement, and the ridge dominates the country beyond.

Artillery. The support of the artillery may be in one of two forms: a rolling barrage, or concentrations on specially selected points.

The zone of advance of the division (1600 yards in width) can be covered by an effective barrage if all of the 75's are used for that purpose. This leaves the 155's for special work or for use in advance of the barrage.

A barrage beyond the line of Piney Creek (stream) would not be effective, as it would necessitate a forward movement of the guns and a consequent reduction of fire while this movement was being made.

On the other hand, the area immediately to the right is so vital a factor in the advance of the division, that it must be considered. If General A, after consultation with the Commanding General, 9th Division, decides to use any of his light artillery on this area, a barrage covering the division zone becomes impracticable, and a series of concentrations should be used.

Inasmuch as the 9th Division and the corps artillery are both to cover these ridges and the small hills, General A feels that that will be sufficient, and decides upon a rolling barrage as stated above.

A definite assignment of the artillery brigade to support the assault of the Red second position, and a definite assignment of artillery to both brigades during the envelopment should be made so that the artillery commander can co-ordinate the work of these two phases and arrange for the necessary movement forward of his regiments.

Reserves. General A must have some division reserve, but the situation demands that the brigades be depleted as little as possible. One battalion of infantry is as large a force as he feels justified in taking from his brigades. It should be taken from the enveloping brigade, as that one can best spare it.

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Division Machine Gun Battalion. This battalion should assist the enveloping attack from a position from which it can be readily moved to support the 20th Brigade. However, the great fire power of the battalion should not be lost in the assault of the first Red position and the organized area immediately in rear. It can use overhead fire here.

Tanks. Both brigades will have good use for tanks, but the division has a third position to take and some tanks should be held out of the first phase of the drive. Those assigned to the enveloping attack should not be used until that brigade goes into action. One tank company to each brigade and one held in reserve is correct.

Air Service. No special assignment of the observation squadron, other than the usual one to the artillery, is necessary or desirable in this situation. General A must keep control over the two attacks and to do this he must have constant observation over the division zone and the territory over which the enveloping attack is to go. He must also be informed, at stated times, of the location of all front line troops. All of this is work for his air force.

Axes of Signal Communications. One has been prescribed for the division. The road net and the narrowness of the division zone do not favor a separate one for the brigades. As these brigades pass over the same ground, there is no reason why they cannot use the axis of the division.

Command Posts. These have been prescribed for the division. The division commander should prescribe those for the 20th Brigade, the 21st using the same ones as far as possible.

Second Requirement:

10th Div,
STUMPTOWN, MD.,
2 June 19, 10:00 AM.

FIELD ORDERS }
No — }

Maps: Gettysburg-Antietam Map, 1:21120.

1. Situation of enemy unchanged.
   Our army makes a general attack on D day at H hour to penetrate the enemy's defensive zone and drive him into the open.
2. (a) This division attacks on its present front, the 9th Div on our right and the 11th Div on our left.

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(b) Mission. To penetrate the Red third position between RJ 587W and RJ 584 and to assist the 9th Div to carry the ridges in its front.

(c) Division zone:

Eastern boundary: hill 588 (inclusive)—PINEY CREEK (inclusive)—RJ 567 (inclusive)—SHOEMAKER—527 road (inclusive)—stream extending north from GIDD (exclusive)—BLAIR (inclusive)—NEWMAN (inclusive).

Western boundary: GALT (inclusive) WASHINGTON S.H. (exclusive)—hill 572 (exclusive)—farm house 800 yards southeast of PALMER (exclusive)—D. SPANGLER (exclusive)—unnamed stream east of B. SWARTZ (inclusive)—MEYER (inclusive)—CR 584 (inclusive).

(d) Time of attack: H hour on D day (to be announced later).

(e) Line of departure: front line trench.

(f) Rate of advance: to include the Red second position, 100 yards in 4 minutes. After that time as ordered by the commander of the assaulting brigade.

3. (a) The 20th Brig, with regiments abreast will attack on the division front and penetrate the Red zone between RJ 587W and RJ 584. Special measures will be taken for the protection of its right flank.

Eastern boundary: same as division.

Western boundary: same as division.

(b) The 21st Brig will follow the 20th Brig at 1 mile to a position in the vicinity of GALT and be prepared to attack on the front hill 541 (inclusive)—hill 621 (exclusive) (northwest of PINEY CREEK) and carry the 669—602—KINGSDALE road. When relieved on this road by the 9th Div, the 21st Brig will reassemble in the vicinity of hill 587 and report for orders.

Southern boundary: hill 541 (inclusive)—hill 711 (inclusive)—hill 727 (inclusive).

Northern boundary: hill 621 (exclusive) (northwest of PINEY CREEK)—stream northeast to KINGSDALE (inclusive)—RJ 602 (inclusive).

The 21st Brig will maintain contact with the right of the 20th Brig by means of strong combat groups.

The artillery fire of the 9th Div will not pass beyond the 744—742—621—ridge until the 21st Brig has been relieved by the 9th Div.

(c) The artillery preparation will begin at H hour minus 2 hours. The corps artillery places concentrations of non-persistent gas on hostile batteries, strong points and wooded areas. The use of gas on any area will cease one hour before the infantry is scheduled to reach that area.

The 10th FA Brig will support the attack of the 20th Brig to include the line of Piney Creek (stream). After that time the 28th LA and 1 bn 30th HvA will support the 20th Brig, and the 29th LA and the 30th HvA (less 1 bn) will support the attack of the 21st Brig, from their present positions. (See artillery annex.)

(d) The 10th Obsn Sq will constantly observe the division zone and the area between the PLEASANT GROVE S. H.—hill 742 ridge and the KINGSDALE—GEORGETOWN road. It will report hourly the position of all front line units.

(e) Co A, 201st Tank Bn is assigned to the 20th Brig, Co B to the 21st Brig.

The remainder of the Tank Bn will follow the 21st Brig to a position in the woods on hill 588 and await orders. (See tank annex.)

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(f) The 10th MG Bn will support the assault of the first Red position by overhead fire, and will then move to a position near hill 581 and support the attack of the 21st Brig. (See Machine Gun annex.)

(g) The 3d Bn 87th Inf will constitute the division reserve. It will follow the 21st Brig and await orders in the woods ½ mile north of WASHINGTON S. H.

(h) CO 10th Engrs will assign 1 co to the 10th FA Brig for repairing the roads during the advance. (See Administrative Orders No—.)

(x) Each front line battalion will be assigned 1 accompanying gun, and the CG 10th FA Brig, will arrange to have 1 btry assigned to each inf regt after the capture of the second Red position. (See artillery annex.)

4. (See Administrative Orders No—.)

5. (a) Plan of signal communications (see annex).

(b) Axes of signal communications:

10th Div:
STUMPTOWN—GALT—CR 559—GIDD—WHITEHALL.

20th Brig:
Same as division.

21st Brig:
STUMPTOWN—GALT—PINEY CREEK.

(c) Command posts:

10th Div: 1st, STUMPTOWN; 2d, CR 559; 3d, WHITEHALL.
20th Brig: 1st, CR 547; 2d, CR 573; 3d, WHITEHALL.
21st Brig: 1st, 547; 2d, GALT; 3d, PINEY CREEK.

(d) Forward communication centers:

BASHERE MILL—GALT—GIDD—WHITEHALL.

A,
Maj Gen.

Copies to:

CG 2d Corps
CG 9th Div
CG 11th Div
CG 20th Brig
CG 21st Brig
10th FA Brig
Div Staff
CO 10th Engrs
CO 10th F Sig Bn
CO 10th MG Bn
CO 10th Obsn Sq
CO Tank Bn
CO 2d Bn 87th Inf
CO Tns

Artillery Situation

Based on the foregoing situation and the division order as given in the approved solution, and the data given on the map, in map pocket, showing the artillery dispositions, enemy positions and enemy centers of resistance.

Required:

The formal field order of General E, commanding the 10th Field Artillery Brigade.

NOTES

(a) Arrangements have been made whereby the two roads east of and intersecting at 509 (southeast of Galt) are available for the 10th Division; also the Galt—Washington S. H. road. The artillery has priority on the roads for its forward movement.

(b) Maps, tables, or other data attached to the order need not be prepared. They will be designated and referred to in the order, however, as though actually prepared. In such case, the map, table, or other data will be described briefly in notes,

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with reasons if essential to an understanding of the procedure adopted. In the cases of the preparation and support in the attack, this description will include the scheme or principles followed in assigning objectives, areas, or zones to subdivisions of the artillery command and also to calibers, if this is not covered in the order.

If not covered in the order, the plan for advancing the artillery will be described as to units, times and routes.

(c) Information desired for the order which is contained in the division administrative order may be referred to simply as "(Taken from Adm O)."

An Approved Solution

ANNEX TO FIELD ORDERS No —, 10TH DIV, 2 JUNE 19

ARTILLERY

10th FA Brig,
STUMPTOWN, MD.,
2 June 19, 10:00 AM.

FIELD ORDERS }
No — }

Maps: Gettysburg-Antietam, 1:21120.

1. (a) Situation of enemy unchanged.
   (b) Our army attacks on D day at H hour.
   (c) The 10th Div supported by tanks, attacks on its present front, with the 9th Div on our right and the 11th Div on our left.

   Mission of the 10th Div, to penetrate the Red third position between RJ 587W and RJ 584, and to assist the 9th Div in carrying the ridges in its front.

   The 20th Brig attacks on the division front to penetrate the Red third position.

   The 21st Brig follows the 20th Brig at 1 mile to a position in the vicinity of GALT, and attacks on the front hill 541 (inclusive)—hill 621—(inclusive) (northwest of PINEY CREEK) to carry the 669—602—KINGSDALE road.

   For boundaries of zones of advance, see attached tracing A (omitted).

   (d) The 10th Obsn Sq will participate.
   (e) The corps artillery neutralizes the hostile artillery, and certain strong points and wooded areas.
2. The 10th FA Brig will support the attack of the 10th Div by a preparation, a rolling barrage, and successive concentrations.
3. (a) The 28th LA will support the 20th Brig, 1 bn supporting each regt. CO 28th LA will attach 1 inf battery to each regt after capture of the second Red position.

   Smoke concentrations will be placed beyond the barrage lines as desired by the CO, 201st Tank Bn.

   (b) The 29th LA will support the attack of the 20th Brig to include the PINEY CREEK. Thereafter it will support the enveloping attack of the 21st Brig from its present position, details being arranged with the CG 21st Brig. Upon completion of this attack, it will report from its present position for orders. CO 29th LA will detach 1 accompanying gun for each front line battalion of the division.

   (c) The 30th HvA will support the attack of the 20th Brig to include the PINEY CREEK. Thereafter the 3d Bn will continue this support. The 1st and 2d Bns will support the enveloping attack of the 21st Brig from their present positions, details being arranged with the CG 21st Brig. Upon completion of this attack the 1st and 2d Bns will be reported from their present positions for orders.

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(d) Attached co engrs will repair road across trenches, following infantry forward. Thereafter detachments will accompany leading artillery battalions to assist them at obstacles.

(x) (1) Rate of fire: light guns, 400 rounds per btry per hour; howitzers, 200 rounds per btry per hour.

The barrage will be fired with shell. For the subsequent concentrations, the light guns will use shrapnel when satisfactory observation can be obtained. Light batteries will move forward with equal proportions of shell and shrapnel.

(2) The preparation will be from H hour minus 2 hours to H hour minus 10 minutes. For details, see attached tracing A (omitted).

For gas concentrations, non-persistent gas only will be used. Its use on any area will cease at least one hour before the infantry is scheduled to enter that area.

(3) The support in the attack will be as follows:

At H hour minus 10 minutes a standing barrage will be placed by the light guns as shown on Tracing B (omitted). This barrage will be lifted by bounds of 50 meters according to the lines and times shown, to include the general line of the PINEY CREEK.

The howitzers will place concentrations as indicated, their fire at all times being kept at least 350 meters in advance of the barrage line of the light guns.

Upon completion of the barrage, concentrations will be placed as indicated, or as required by the situation.

(4) At H hour plus 70 minutes the 2d Bn 28th LA will be advanced via west of hill 587—RJ 545—GALT—WASHINGTON S. H. to a position north and east of WASHINGTON S. H.

At H hour plus 75 minutes the 3d Bn 30th HvA will be advanced via hill 584—CR 509—GALT to a position south of hill 586.

At H hour plus 115 minutes the 1st Bn 28th LA will be advanced by the same route as the 2d Bn 28th LA to a position near the 3d Bn 30th HvA.

Routes will pass in rear of formed assault bns of the enveloping attack of the 21st Brig.

Orders will issue during the attack for subsequent advances.

4. (a) Stations for slightly wounded: (Taken from Adm O.)
(b) Ammunition distributing station: (Taken from Adm O.)

5. (a) Artillery axis of signal communications:
STUMPTOWN—RJ 547—GALT—CR 559—GIDD—WHITEHALL.
See plan of artillery signal communications attached (omitted) and attached Table I (omitted).

(b) Command posts: 10th FA Brig: 1st, STUMPTOWN; 2d, CR 559; 3d, WHITEHALL.
See Table I (omitted).

E,
Brig Gen.

Distribution:

Annex to division order.
CO 28th LA.
CO 29th LA.
CO 30th HvA.
CO 10th Amm Tn.
Corps C of A.
CG 9th FA Brig.
CG 11th FA Brig.

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DESCRIPTION OF PAPERS THAT WOULD BE ATTACHED

Tracing A. To be placed over map. Would show:

(a) The division boundaries; also the boundaries of the enveloping attack of the 21st Brigade.
(b) The assignment of objectives for the preparation.

The preparation is confined to the division zone of advance, except those points on the right flank which are not covered by the artillery of the 9th Division and which might interfere with the advance of the 10th Division. There will be time later to prepare the enveloping attack of the 21st Brigade; moreover a preparation in this area now might reveal our intentions.

Objectives are assigned as far as possible to the unit which during the attack will cover the zone in which the objectives are located, except where enfilade fire can be secured.

The light guns in general are assigned objectives in the first position, the howitzers those further in rear; except that the howitzers should be given the more powerful objectives.

The first position should be covered thoroughly first; objectives in rear then are assigned as far back as they can be covered efficiently and as the range permits.

Gas should be used on those objectives sufficiently far to the rear to insure safety to our front lines in case of an unfavorable wind, and yet not so far to the rear that they will exercise no influence in the early stages of the attack. Machine guns placed for long range overhead fire, for example, would be very appropriate objectives.

The tracing should show the regiment to which the objective is assigned, the period of fire or the number of rounds, and the kind of ammunition, gas or high explosives or shrapnel. This may be done by giving the objective a serial number and using a side table, or by placing the information on the objective itself.

Tracing B. This would bear time lines across the division zone of advance to include the second position. The times are either noted at the end of the lines or otherwise indicated. These times establish an inferior limit for the light guns and, taken in connection with the provisions of the

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order, fix the same for the howitzers. The superior limit of the barrage is indicated.

The division zone is divided into two zones, one for each battalion of the 28th Light Artillery. The barrage area must be divided further into four zones, one for each light battalion, since the fire of the 29th Light Artillery must be superposed on that of the 28th Light Artillery, so as not to disturb the zones of the latter. The objectives for the howitzers are indicated, and are in general the strong points, particularly woods. They must not be so numerous as unduly to dissipate the fire or deprive the barrage of the necessary depth on important points.

Plan of Artillery Signal Communications. This would contain details prescribing the installation and use of the various means of communication, telephone, radio, visual, etc., and for their progression. It must conform to the division plan. The artillery axes are fixed in as much detail as is deemed advisable, with routes, number of wires, centrals, forward communication centers, etc.

Table I. Would show the various artillery organizations, down to include battalions, with command posts, call letters and identification panels.

Useful information of the same character should be included covering the larger artillery units of the 9th and 11th Divisions, and of the corps artillery.

(E-1) PASSAGE OF LINES IN BATTLE

Major H. J. Brees,
Cavalry

Maps: Gettysburg-Antietam, 1:21120, New Oxford, Hunterstown, Gettysburg, Bonneauville and Taneytown Sheets.

The subject of this discussion is the passage of lines following a halt in battle. As the name implies it is a passing through of already established lines by elements from the rear. Another term frequently used, and which may perhaps give a better visualization, is "leap frogging." The term as generally used implies not merely a relief of an element but, in addition, a passing through for the purpose of

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attacking and advancing. While, generally speaking, the inference is that front line elements are passed through, the same principles would be involved if rear elements were passed through.

The passage of lines will occur frequently in any situation where the necessity arises for pushing the attack to the extreme by fresh impulses from the rear. It is particularly applicable in a penetration and in the opening out and development of a salient created by a penetration.

The principles involved apply to any unit, no matter what its size, but it is readily apparent that the larger the force the greater the difficulties. A regiment attacking in column of battalions will frequently find it necessary, in order to press the attack home, to pass the rear battalions through, perhaps repeating the operation a number of times. A front line battalion thus "leap frogged" is given an opportunity to re-form, gain a rest, and then become available to add later the necessary fresh impulse to keep driving the attack onward.

It must be understood that the passage of lines does not mean the amalgamation of a rear element with a front element. The leading element is completely passed through and becomes a rear element, either by remaining in place or by moving to the rear. Each unit is kept separate. A support battalion which is moved up to reinforce a front line battalion does not necessarily pass through. It is amalgamated with and becomes part of the front line. But when the support battalion replaces and takes over the duties of a front line battalion, which then may be passed to the rear, or even held in place, a passage of lines may be said to have taken place.

While the passage of lines involves the relief of a unit, the inference is something beyond a mere relief and the operation implies an immediate advance.

Ordinarily we speak of relieving a unit when that unit is in a more or less stabilized situation and is merely replaced by a fresh unit. As has been pointed out before, a relief may be gradual and extend over a number of days. Here all plans may be worked out carefully and in great detail. On the other hand, a complete relief may be effected

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at one operation. The difficulties are increased in this case but no immediate advance is contemplated by the relieving unit. In other words the simple relief of a unit presupposes a more or less stabilized situation.

The passage of lines includes a relief, but, as already stated, it presupposes the relief of a unit with a view to adding a fresh impulse and a consequent immediate advance.

It has already been said that, although the general principles involved are the same, the larger the unit the more the difficulties. This discussion will deal with the the passing through of one division by another. In such a case the time and necessity must be determined by the corps, and the problem can be made more or less difficult, depending upon the advance notice and assistance given by the corps. Any passage of lines, to avoid mixing of units, must be effected within a few hours' time. It must be a complete and clear cut job. Congested roads, hostile fire, unfamiliarity with the terrain, and, more than likely, movement at night all tend to add to the difficulties. The incoming unit should be given an opportunity for a prior reconnaissance of the area, of the roads and routes, of the location of the occupying units, of command posts, of dumps, if any, of wire communications, etc. On the other hand a passage of lines may become necessary at a moment's notice, so to speak, in which case the problem is a difficult one.

The passage of lines also implies that the units passing through arrive on the scene prepared for action. In other words, the development, approach march and deployment take place some distance in rear. The unit is fully deployed for action as it passes through.

The passage of lines also furnishes a convenient means for a change of front of attack if such is necessary.

The problem which follows is a continuation of the one on the attack of a defensive zone (page 483) and involves the passing of a fresh division through an exhausted division which has come to a standstill.

General Situation:

See General Situation given in Chapter V (D-1), Attack Against a Defensive Zone (page 483). The Blue attack has

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been generally successful. In two day's fighting the Reds have been forced back to their third line, which runs through New Oxford—Brush Run—Table Rock—Biglersville.

Special Situation (Blue):

On the first day the right of the 1st Corps succeeded in penetrating the enemy's first and second positions, but its left was held up by the McAllister Hill—Wolf Hill ridge. During the night the enemy commenced to evacuate this salient. During the second day the advance was gradual and stubbornly contested. The 2d Blue Division (center), in particular, suffered severe losses in the first day's fighting. It also suffered heavily the second day.

In the meantime the 5th Division had been moved on the first day from south of Harney to a position along Little Run, west of Two Taverns.

At 8:00 AM, on the second day the commanding general, 5th Division, received the following telephone message from the corps chief of staff:

> "The corps will continue the attack tomorrow. Your division will pass through the 2d Division tonight. The artillery of the 2d Division will assist in your attack. All roads between White Run—Granite Hill (both exclusive) and the Two Taverns—Bonneauville—R. F. Weaver road (inclusive) will be available. Infantry will keep off of improved roads. No troops will be north of the Hanover Road before 10:00 PM. Troops will be in attack positions by 3:00 AM. Routes and attack positions will be reconnoitered today by small parties. Field order later."

At 11:30 AM, the following field order was received from the corps:

1st Corps,
HARNEY, PA.,
2 July 19, 9:00 AM.

FIELD ORDERS
No 10

Maps: Gettysburg-Antietam Map, 1:21120, New Oxford, Hunterstown, Gettysburg, Bonneauville and Taneytown Sheets.

1. Our attack has succeeded in penetrating the enemy's first and second positions. He is falling back on his third position through NEW OXFORD—BRUSH RUN south of HUNTERSTOWN—TABLE ROCK.

   The 2d Corps has reached a line through IRISHTOWN.

   The 2d Army has reached the general line through ROCKY GROVE S. H.—TEXAS.

   Both armies renew the attack tomorrow to drive the enemy north of the CONEWAGO.

2. This corps attacks at 5:00 AM, 3 July 19, with the 1st, 5th and 3d Divs in line from east to west, to pierce the enemy's third

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position, secure the crossings of the CONEWAGO within its zone of action, and cut the CARLISLE and BALTIMORE TURNPIKES between ROUND HILL and HAMPTON.

Zone of action: * * *

3. (a) The 1st Div, exerting its main effort on its left, will pierce the hostile third position near BRUSH RUN. It will assist the 5th Div in the capture of NEWCHESTER. It will seize the crossings of the CONEWAGO east of that place and secure the ridge southeast of HAMPTON.

Zone of action: * * *

(b) The 5th Div will enter the line tonight, passing through the 2d Div. It will attack strongly on its right, penetrating the hostile third position near the MORITZ S. H. Assisted by the 1st Div it will capture NEWCHESTER and secure the crossings of the CONEWAGO north of that place. It will secure the ridge running north from HAMPTON.

During its advance to its attack positions all roads between WHITE RUN—GRANITE HILL (both exclusive) and the TWO TAVERNS—BONNEAUVILLE—R. F. WEAVER road are available.

Troops will be in attack positions by 3:00 AM, 3 July 19, at which hour command of the 2d Div sector will pass to the CG 5th Div.

Zone of action:

Eastern boundary: extended to CR 530—NEWCHESTER—OAKWOOD S. H.—HAMPTON (all inclusive).

Western boundary: extended to RJ 575—OAKGROVE S. H.—CHROMIS (all inclusive)—ROUND HILL (exclusive).

(d) The 3d Div will drive hard and secure HUNTERSTOWN. It will seize the crossings of the CONEWAGO north of HUNTERSTOWN without delay. It will push on and secure ROUND HILL. It will maintain contact with the left of the 5th Div.

Zone of action: * * *

(e) An artillery preparation of 30 minutes will precede the attack. The advance of the 5th Div will be preceded by a rolling barrage to include the northwest and southeast road through crossroads 594 and 530.

The 2d FA Brig is attached to the 5th Div and will support its attack to the above mentioned road, after which it will revert to corps control.

Corps and army artillery are charged with all counter-battery work.

Between 5:00 AM and 6:00 AM all corps and army artillery which can be spared from counter-battery work will be concentrated on the enemy's third position between BRUSH RUN and RJ 600.

Fire of divisional artillery on or near division boundaries will be co-ordinated by division commanders concerned.

No gas will be used.

See Annex No 1 (Artillery Annex).

(f) The corps air service will * * * * * * * *

(g) The 2d Div (less 2d FA Brig) will remain in its present positions until after the capture of the enemy's third position, when it will be assembled near RJ 548 in corps reserve.

(h) The 1st and 2d Cavalry * * * * *

(i) The 4th Div * * * * * *

4. For administrative details see Adm O No 12.

5. (a) Plan of signal communications: no change.

(b) Axes of signal communications:

Corps: extended to RJ 552—CR 506—NEWCHESTER—HAMPTON.

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1st Div: * * * *
5th Div: CR 530—562—GULDENS—then same as corps.
3d Div: * * * * *

(c) Command posts:
Corps: TWO TAVERNS after 6:00 PM, 2 July 19.
1st Div: * * * * *
5th Div: CR 530 after midnight 2-3 July 19.
3d Div: * * * * * * * * *

By command of Maj Gen X.

ABC,
C of S.

Copies to:
* * *

Based upon the above field order and the reconnaissances made, the following division field order was issued:

5th Div,
TWO TAVERNS, PA.,
2 July 19, 4:00 PM.

FIELD ORDERS
No 5

Maps: Gettysburg-Antietam Map, 1:21120, New Oxford, Hunterstown, Gettysburg, Bonneauville and Taneytown sheets.

1. Our attack is driving the enemy back on his third position through NEW OXFORD—BRUSH RUN—TABLE ROCK.
Our corps has reached the high ground south of the WESTERN MARYLAND R. R.
The attack will be continued tomorrow.
Corps order of battle from east to west: 1st Div, 5th Div, 3d Div.

2. This division will pass through the 2d Div tonight and attack at 5:00 AM, 3 July 19.
Mission: To pierce the hostile third position, seize NEWCHESTER and the crossings of the CONEWAGO north of that place, and secure the ridge north of HAMPTON.
Formation for attack: brigades abreast in column of regiments, 9th Brig on the right.
Zone of action:
Eastern boundary: TWO TAVERNS—RJ 587—M. FINCK—RJ 582—552—CR 506—530—NEWCHESTER—OAKWOOD S. H.—HAMPTON (all inclusive).
Western boundary: WHITE RUN—GRANITE HILL (both exclusive)—RJ 575—OAK GROVE S. H. (both inclusive)—ROUND HILL (exclusive).

3. (a) The 9th Brig, driving hard, will pierce the enemy's position near MORITZ S. H. and assist the 10th Brig in penetrating the position. It will assist the 1st Div in the capture of hill 571. It will, assisted by the 1st Div, advance and seize NEWCHESTER and the crossings of the CONEWAGO. It will without delay, push forward and seize HAMPTON.
Zone of action:
Eastern boundary: eastern boundary of division.
Western boundary: RJ 525—CR 530—562—GULDENS—CR 573—RJ 606—500—519—hill 584 (all exclusive).

(b) The 10th Brig, assisted by the 9th Brig, will quickly penetrate the hostile position. It will advance without delay and seize the crossings over the CONEWAGO in its zone. It will push on and seize hill 602. It will assist the 3d Div in the capture of ROUND HILL.
Zone of action:

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Eastern boundary: western boundary of 9th Brigade.
Western boundary: western boundary of division.

(c) The attack will be preceded by 30 minutes' artillery preparation.
The 2d FA Brig is attached to the division for the attack.
The advance of the infantry will be preceded by a rolling barrage to include the northwest and southeast road through CR 594 and 530, subsequent to which concentrations of fire will be placed on selected points in advance of the infantry.
Rate of advance of barrage 100 yards in 4 minutes.
One battery of light artillery will be assigned each infantry brigade to furnish accompanying guns.
For the advance from the 594—530 road the 13th LA is attached to the 9th Brig and the 14th LA to the 10th Brig.
See Annex No 1 (Artillery Annex).

(d) The 5th Obsn Sq will maintain constant observation of enemy's positions and movements and report progress of the attack hourly on the hour. One flight will be attached to each artillery brigade for observation of fire.

(e) The 13th MG Bn will support the attack by direct and overhead fire from a position south of GULDENS. When no longer able to fire this battalion will be assembled at GULDENS

(f) 1 co Engrs will be attached to the 9th Brig, 1 co to the 10th Brig, and 1 co to the 5th FA Brig. They will be prepared to assist the rapid advance of the artillery across the enemy's position and to repair or replace the bridges over the CONEWAGO quickly.
The 5th Engrs (less 3 cos) as directed in Adm O No 5.

(g) 1 bn of each rear regiment will be at the disposal of the division commander as a division reserve.

(x) (1) For the advance to attack positions all roads between MIDDLE RUN—GRANITE HILL (both exclusive) and the TWO TAVERNS—BONNEAUVILLE—R. F. WEAVER road are available.

(2) No troops, except reconnaissance parties, will cross the HANOVER ROAD before 10:00 PM, 2 July 19.

(3) All improved roads are reserved for the movement of artillery and trains of 5th Div from 8:00 PM to 3:00 AM night of 2-3 July 19.

(4) Foot troops will be moved across country and in artillery formation north of the Hanover Road.

(5) All troops will be in attack positions by 3:00 AM, 3 July 19.

(6) Command of 2d Div sector passes to CG 5th Div at 3:00 AM, 3 July 19.

(7) Guides for each infantry brigade will be at CR 530 and RJ 484 on the HANOVER ROAD at 9:30 PM, 2 July 19.

4. For administrative details see Adm O No 5.
SSW CR 562 and RJ 568.

5. (a) Plan of signal communications: No change except that panels will be displayed hourly on the hour.

(b) Axes of signal communications:
Div: CR 530—562—GULDENS—RJ 506—NEWCHESTER—HAMPTON.
9th Brig: RJ 582—567—CR 573—then same as division.
10th Brig: CR 562—GULDENS—CR 573—RJ 600—CR 632—594—CASHMUN—RJ 500—544—hill 602.

(c) Command posts:
Div: CR 530.
9th Brig: R. F. WEAVER FARM.

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10th Brig: CR 562.
FCC: CR 562.

A,
Maj Gen.

Copies to:

Div Staff
9th Brig
10th Brig
5th FA Brig
2d FA Brig
2d Div
1st Div
3d Div
1st Corps
5th Engrs
13th MG Bn
5th F Sig Bn
5th Obsn Sq

Discussion

It seems desirable to discuss briefly the duties of the division commander, his staff, and of certain officers, subsequent to the receipt of the telephone message from corps headquarters.

When this telephone message is received, the division commander would talk the situation over with his chief of staff, following which one or both would immediately proceed to the command post of the 2d Division. As a general rule both the division commander and the chief of staff should not be absent from the command post at the same time. This would apply, especially in this case, due to the fact that many points will come up during the course of the day which will require decision. In this situation it is assumed that the division commander would at once visit the command post of the 2d Division, probably taking with him his G3.

The chief of staff would at once send for G1, G2, the assistant G3, the artillery commander, signal officer, machine gun officer and engineer officer and would go over the situation with them. He would then direct the assistant G3 to issue a warning order to the command as to the prospective move, directing that brigade, regimental, and battalion commanders at once make reconnaissances as to prospective routes and attack positions, the 9th Brigade to go in on the right and the 10th Brigade on the left.

G2 would be directed to arrange to send forward his intelligence personnel at once, to see that the command was furnished with sufficient maps and to have prepared an estimate of the enemy's situation.

G1 would be directed to have the chiefs of services concerned immediately get in touch with the corresponding

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chiefs of services of the 2d Division and arrange to take over or replace their installations. He would have to make arrangements for the forwarding of ammunition and supplies, taking over of traffic control, and like matters.

These assistant chiefs of staff would also be directed to send representatives from their offices at once to the corresponding offices of the 2d Division and direct them to remain there until the 5th Division had moved up.

The signal officer would be directed to confer with the signal officer of the 2d Division, arrange to take over his installations and equipment, exchanging equipment if necessary.

The artillery commander would be directed to send forward reconnoitering parties from brigade, regimental and battalion headquarters, and then personally to get into touch with the commanding general, 2d Field Artillery Brigade.

The machine gun officer would likewise be directed to get into touch with the machine gun officer of the 2d Division and make a careful reconnaissance of the front, with a view to the subsequent co-ordinated utilization of the machine guns.

The engineer officer would have two duties. It is probable that engineers will be needed to assist artillery, and possibly other troops, in crossing over the enemy's third positions. In addition the question of road maintenance will be an important one, and he should also look into this.

In short, all of these division staff officers, or representatives from their offices, must get into touch with the corresponding people of the 2d Division.

In this particular situation the 5th Division is fortunate in that it has practically a day in which to make reconnaissances and arrangements for the move forward that night. Passing through should therefore be a much smoother operation than if this preliminary time for preparation had not been given.

The use of a fresh division to pass through a division already engaged usually indicates that the latter division has become exhausted and lacks the necessary driving power for further advance. This naturally pre-

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supposes that the attacking division has already been, or soon will be, brought to a halt upon the battlefield. Such being the case, it will have to take steps to protect itself. This means that a main line of resistance will be outlined, which will be covered by outposts and have reserves in rear. It can be seen, then, that if time permits, a reconnaissance of the front by as many officers of all grades as possible would be of extreme value. However, at this time the 2d Division is still fighting and probably advancing. Roads are no doubt congested and the whole area is probably being heavily shelled. Therefore it would be possible to send forward only small reconnoitering parties, and the chances are that company officers would have no opportunity to make personal reconnaissances. However, brigade, regimental and battalion commanders should be able, in the time at their disposal, to get a fairly good idea of the situation.

The corps field order is received at 11:30 AM, and gives very definitely the mission of the 5th Division for the attack on the following day. It is assumed that the division commander and G3 will have returned at about the time of receipt of the corps order and will have information or maps showing the location of the various elements of the 2d Division.

To simplify the problem it is further assumed that by noon the 2d Division has pushed forward to the heights just south of the Western Maryland Railroad, where it has been compelled to dig in.

In this problem two choices are open to the division commander in regard to the orders that he will have to issue. He can issue an order covering the move forward and the passing through the 2d Division, to be followed by a subsequent attack order, or the two orders can be combined in one. Either method would be correct, but in this case it appears that time can be saved and a clearer understanding obtained by the issuance of one order. The fact that the 2d Division has been stopped locates with a considerable degree of exactness, not only its front line, but also the position of all elements of the division. There will undoubtedly be minor changes, but they should not be such as would materially affect the problem.

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The passing through at night is evidently made for two reasons: First, to avoid unnecessary losses; and second, to conceal the change of divisions from the enemy if possible and have available a fresh division to give new impulse to the attack. At this time of year and in this latitude it would probably not be dark until well after 9:00 PM, and would begin to be light again before 4:00 AM. Consequently the hours of darkness are limited. In order to move forward from the present position and be in position to attack by 3:00 AM, it would be manifestly impossible to move all troops on the roads. It is obvious therefore that the roads must be reserved for artillery, portions of the sanitary train, and possibly a portion of the engineer and ammunition trains. The corps order provides two good roads for the forward movement.

The infantry cannot proceed to its positions and then deploy. It must be developed and deployed well to the rear. Consequently, it will have to move across country. This movement will be slow, but as the distance is comparatively short, it should be able to be in position by 3:00 AM.

The movement forward of the 5th Division is the primary consideration during the night, consequently there can be no question of supplying the 2d Division during the night. Their trains must be kept off the roads. While not specifically indicated in the message from the chief of staff, nor in the corps order, this is a matter which would undoubtedly be taken up by the division chief of staff with the corps and instructions would be issued accordingly to the 2d Division.

To insure that the move will be made under cover of darkness, and to obviate unnecessary congestion in the forward areas, the corps has prescribed that no troops shall cross the Hanover Road before 10:00 PM. In other words, this line can be assumed as the initial point for the approach march of the 5th Division. In this way the infantry and artillery can move forward simultaneously.

It is quite obvious that in a movement across country the infantry will have to march by the compass, but to insure that troops reach their proper attack positions, arrangements should be made with the 2d Division to furnish guides for the various columns.

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It would probably be impossible for the 5th Division to move forward any supplies during the first night. Consequently G1 should see that the troops moving into action have with them at least two days' rations. It is probable that trains will be moved forward some time during the first day, at any rate on the night of the first day.

The formation to be adopted for the attack will now be examined. As stated before, the troops must move forward prepared for action. There will be no opportunity for preparation after they have once gotten into position. It is apparent that the intention of the corps is to smash a hole through the enemy's third position on the boundary line between the 1st and 5th Divisions. This accomplished, an advance of some 5 or 6 miles is ordered, combined with a change of direction, so as to cut the Carlisle and Baltimore Turnpike. The formation to be adopted, therefore, must be one which will have sufficient driving power to break through the hostile position and then to follow up without halting. This will require a formation which has great depth. The division front is about 2600 yards. This will require four battalions. Assuming this as a basis, then, the division could attack in line of regiments in columns of battalions. But, in view of the fact that the attack of the enemy's position will be difficult and that opposition will undoubtedly be encountered in the crossing of the Conewago, it seems that it would be more desirable to launch the attack with brigades in line and regiments in column. This will permit each leading regiment to put two battalions in the line and one in support, leaving one regiment in reserve in each brigade. This formation will allow a very strong initial attack and give a very strong force which can pass through to push the attack on as soon as the leading regiments begin to slow down.

As stated before, the plan of the corps is evidently a quick penetration on a comparatively narrow front, which, combined with the attack on the west, will force the evacuation of the entire hostile position. It will be remembered that the 2d Division has with it two field artillery brigades. Some of the difficulties of the movement of the 5th Division could be obviated if both of these brigades could be

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used in the initial attack, later having the field artillery brigade of the 5th Division brought up in support of the division, after the initial rupture of the hostile line. However, it is quite possible that one of the brigades attached to the 2d Division will not have been moved up sufficiently close to render the artillery support that will be needed. It therefore seems better to move the artillery of the 5th Division forward, leaving in place the rearmost artillery brigade of the 2d Division.

It can be foreseen that the artillery will have some difficulty in crossing over the trench system when the infantry has penetrated the hostile position. For this reason a portion of the engineers should be assigned to the artillery brigade and should make the necessary preparation beforehand to provide the tools and equipment for getting over the trenches. It can also be foreseen that when the Conewago is reached further advance is going to be stopped, or materially slowed down, unless steps are taken at once to repair or replace the bridges across that stream. It is also more than likely that a great deal of labor will be necessary on the road within the division sector, which will be badly torn up by shell fire. For these reasons a company of engineers is assigned to each brigade, a company to the artillery brigade, and the remaining three companies to be used as directed by G1.

In order to smash the hostile position quickly, and to smother the enemy, every bit of fire that can be brought to bear should be laid on his trench system just before and during the attack. For this reason it seems desirable to move the divisional machine gun battalion to a position well forward where it can be used for direct or overhead fire, or both, rather than hold it in reserve. The knoll south of Guldens seems to be a suitable place. However, after the rupture and capture of the hostile position the danger of a counter-attack always exists. The subsequent action cannot be foreseen, therefore it is believed that this machine gun battalion should be assembled and held for such use as later developments may indicate.

In summing up, a few principles connected with a passage of lines should be borne in mind:

It is more than a relief.
An attack almost invariably follows.

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Relief of large units will invariably occur at night.

The development must take place well to the rear.

For foot troops the approach march may have to be across country and by the compass.

The approach march will probably be across shell swept areas, hence suitable formations must be adopted to minimize losses.

For the lower unit commanders little or no time will be available for reconnaissance.

Movement across country at night will be slow and tedious, hence sufficient time must be allowed.

When possible guides should be provided.

(E-2) PASSAGE OF LINES IN BATTLE—MAP PROBLEM

CAPTAIN A. R. CHAFFEE
Cavalry

NOTE:—One situation map and one operations map in map pocket to accompany this problem.

Map: Gettysburg-Antietam Map, 1:21120.

General Situation:

(For study before beginning solution of problem.)

The general situation is a continuation of that given in Chapter V (D-2), Attack Against a Defensive Zone—Map Problem, and its solution.

The Blue army attacked at daylight on 3 June 19. At midnight 4-5 June, the front line of the 2d Corps stands as shown on the situation map to be found in the map pocket.

The 1st Corps, on the right of the 2d, has reached the South Branch of the Conewago east of Sells Station.

The line of the 3d Corps, on the left of the 2d, bends back through G. Hoffman—Hedgegrove and the junction of Marsh and Rock Creeks.

Farther west, the 4th Corps, held up by heavy counter-attacks, holds an east and west line just north of Emmitsburg; while the army cavalry covers the Waynesboro Pass.

Special Situation:

The Blue army commander decides to continue his attack on 6 June to cut the York Pike and Western Maryland Railroad near Guldens, destroying the enemy's line of com-

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munications to Lancaster and threatening his lines of retreat to the north.

The situation map of the 2d Corps, showing locations as of 6:00 PM, 4 June 19, is given on the situation map to be found in the map pocket.

Reports show that the 10th Division has suffered heavily and that its attacking power is spent.

At 4:30 AM, 5 June 19, the Commanding General, 12th Division, receives the following telephone message from the Chief of Staff, 2d Corps.

> "12th Division enters line tonight relieving 10th Division, and attacks tomorrow in center of 2d Corps. Artillery of 10th Division remains in position to support 12th Division. Field order now enroute to you. You already know situation of 10th Division.
>
> "All roads between Alloway Creek, Plum Creek, and 573—638—Ash Grove S. H. road (inclusive) available for 12th Division between 6:00 PM and midnight this date. Taneytown—Oak Grove S. H.—Shoemaker road to be used only by artillery and motorized units. Fifty yards between groups of nine vehicles. Movements of infantry north of X line 740 to be in artillery formation. All troops to be in attack positions by midnight 5-6 June. No troops to be north of X line 738 before 7:00 PM. Routes and attack positions to be reconnoitered by small parties today.
>
> "Tanks to be attached to your division now at rendezvous point in woods east of Gidd. Tank commanders report to you today."

(Remainder of special situation to be read at time of solving the problem.)

Special Situation (Continued):

The following order is received by the Commanding General, 12th Division, at 6:00 AM, 5 June 19.

2d Corps,
KINGSDALE,
5 June 19, 4:00 AM.

FIELD ORDERS
No 13

Maps: Gettysburg-Antietam Map, 1:21120.
Operations Map No 13.

1. Our attacks of the past two days have penetrated the enemy's strongly fortified first and second positions. Enemy's machine guns are still holding strongly on the GRAWMER ridge south of WHITEHALL, and he is believed to be occupying his prepared positions through BRUSHTOWN, WHITEHALL and north of TWO TAVERNS. His losses have been very heavy.

The 1st Corps has reached the LITTLE CONEWAGO CREEK near SELLS STATION. The 3d Corps now holds the line G. HOFFMAN—HEDGEGROVE—junction of MARSH and ROCK CREEKS.

Our army resumes its attacks tomorrow, 6 June.

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The 3d Corps, on our left, presses forward in the direction ST. MARY'S CHURCH—WOLF HILL.

2. The 2d Corps attacks at 5:00 AM, 6 June, with the 9th, 12th, and 11th Divs in line from east to west, to cut the YORK PIKE, and bring the crossings of the HARRISBURG ROAD and GETTYSBURG—HARRISBURG R. R. over the CONEWAGO under the fire of our guns.

Zone of action: as shown on Operations Map No 13.

Line of departure (west to east): FAULK—eastern exit GERMANTOWN—orchard 500 yards east of RJ 592—CR 613—thence the front line of the corps.

3. (a) The 9th Div, exerting its main effort on its right, will pierce the enemy's positions between GEBHART and GREGG SAP (both inclusive), and will secure the high ground just north of the WESTERN MARYLAND R. R. at GULDENS. The left of the 1st Corps will protect the flank of the 9th Div.

Zone of action: as shown on Operations Map No 13.

(b) The 12th Div will enter the line night of 5-6 June, relieving all troops of the 10th Div except small infantry covering detachments and artillery.

It will penetrate the enemy's third position between GREGG SAP (exclusive) and WILSON SAP (inclusive) and, co-operating with the 9th Div, will capture GRANITE HILL and the high ground north of the railroad near that hill.

It will aid the early advance of the 9th Div by pressing towards HOOKER TR. to turn the GRAWMER ridge from the north.

The 10th FA Brig will support its attack to the BONNEAUVILLE—SQUARE CORNER road.

Command of the attack sector of the 10th Div passes to CG 12th Div at midnight 5-6 June.

Zone of action: as shown on Operations Map No 13.

(c) The 11th Div will, with its right, pierce the enemy's third position east of BUFORD SAP and, attacking through LAWRENCE, will gain hill 657, covering left flank of the 12th Div.

Zone of action: as shown on Operations Map No 13.

(d) There will be no preliminary artillery preparation.

Corps artillery is charged with all counter-battery missions.

Between 5:00 and 6:30 AM all available guns of corps and army artillery not engaged in counter-battery work will be concentrated on the enemy's third position between GEBHARDT and SHERMAN SWITCH (inclusive) and between GRANT SWITCH and BUFORD SAP. The fire of corps and army artillery will be progressively lifted so as to be north of the lines shown on Operations Map No 13 at the hours stated. After 8:30 AM their fire will be placed on targets as requested by division commanders.

Fire of divisional artilleries on or near division boundary will be co-ordinated by division commanders concerned.

After attack has passed BONNEAUVILLE—SQUARE CORNER road 10th FA Brig will revert to corps control.

No gas will be used.

(e) Air service plan unchanged. The 10th Obsn Sq is detached from 10th Div and attached to 12th Div at midnight 5-6 June.

(f) 1 plat Co A 1st Light Tank Bn and 1 plat Co B 2d Hv Tank Bn are attached to 9th Div.

Co A 1st Light Tank Bn (less 1 plat), and Co B 2d Hv Tank Bn (less 1 plat) are attached to 12th Div.

(g) The 10th Div (less 10th FA Brig), upon relief by the 12th Div will be assembled in the area D. SPANGLER—LITTLE—HILL

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606—PALMER, in corps reserve. Except for covering detachments prescribed in par 3 (b) above, all troops will be south of northern limit of this area by 5:00 AM, 6 June.

The 3d and 4th Cav will move tonight to bivouacs ½ mile north of GEORGETOWN. They will be ready to march from there after 5:00 AM tomorrow on ½ hour's notice.

(x) Divisions will push their advance without waiting for divisions on either flank.

4. See Administrative Orders No —.

5. (a) Plan of signal communications: unchanged. 2d Corps FCC—GIDD.

Axis of signal communication:

2d Corps and 12th Div: KINGSDALE—SHOEMAKER—WHITEHALL—BONNEAUVILLE—GRANITE HILL STATION.

9th Div (extended): PLEASANT HILL S. H.—SMALL—SQUARE CORNER—R. F. WEAVER—GULDENS.

11th Div (extended): GERMANTOWN—TWO TAVERNS—RJ 587—MT. VERNON S. H.—CR 588.

Command posts:

2d Corps: KINGSDALE.
9th Div: LITTLESTOWN.
12th Div: GIDD after midnight 5-6 June.
11th Div: RJ 547.
10th Div: RJ 559.

By command of Maj Gen B:

X,
C of S.

Required:

1. Decsion of Major General A, commanding the 12th Division.

2. Brief statement of plan of movement of 12th Division to front line; with routes to be used by larger units shown.

3. The formal field orders issued by General A for the attack of the 12th Division, under the assumption that orders for the movement into position have been issued.

An Approved Solution

First Requirement:

General A decides:

1. To employ the 26th Brigade to deliver the main blow of the division, penetrating the enemy's third position between Custer Sap and Wilson Sap (both inclusive), and to continue in the zone of the division to capture the high ground north of the Western Maryland Railroad near Granite Hill. This brigade to be supported by the entire 12th Field Artillery Brigade, reinforced until the attack passes the Bonneauville—Square Corner road by the 1st Battalion, 28th

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Light Artillery, and the 1st Battalion, 30th Heavy Artillery. To give this brigade all of the light tanks at the disposal of the division and the heavy tanks less one platoon.

2. To employ the 25th Brigade (less one regiment), supported by the 10th Field Artillery Brigade (less 1st Battalion, 28th Light Artillery and 1st Battalion, 30th Heavy Artillery), and by the motorized machine gun battalion, to break through the enemy's third position between Custer Sap and Gregg Sap (both exclusive), and to penetrate up the ravines north of the Grawmer Ridge to turn that ridge and facilitate the advance of the 9th Division. To allot to this brigade one platoon of heavy tanks. To assemble this brigade in division reserve after the attacks of the 26th Brigade and 9th Division have passed the Bonneauville—Square Corner road.

3. To hold one regiment of the 25th Brigade in division reserve from the outset.

Second Requirement:

Plan of movement of the 12th Division on 5 June:

1. To move the 12th Field Signal Battalion (less detachments) to Gidd; to be clear of Oak Grove S. H. at 7:05 PM.

2. Artillery brigade to move to positions near the Baltimore Turnpike via 573—Oak Grove S. H.—Shoemaker—527 road and the branch of this road via 509 and Goukert. Head of artillery column to reach Oak Grove S. H. at 7:05 PM. Fifty yards between groups of nine carriages.

3. 26th Brigade to move north across field, and by country roads in two parallel columns to its attack positions. To allot to this brigade the bridge 200 yards east of Little and a crossing 300 yards southwest of Little, to be prepared before 7:00 PM by 12th Engineers. To allot all roads between Alloway Creek—Plum Creek and the 573—Oak Grove S. H.—Gidd road (exclusive), to this brigade.

4. 25th Brigade to move in one column east of and parallel to the 573—Oak Grove S. H. road, head to arrive at Oak Grove S. H. at 7:00 PM, thence the column to follow the 615—638—Kuhn road; 93d Infantry to be placed last in brigade column and to be assembled under cover near Shoemaker in division reserve.

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5. 34th Machine Gun Battalion to move to woods east of 575, starting at 10:00 PM, and following the 12th Field Artillery Brigade.

6. One and one-half companies, 12th Engineers, to assist tanks and artillery to move to woods east of Gidd, following 26th Brigade.

7. To cause reconnaissance to be made immediately of positions and routes thereto, guides to be provided on the basis of one per battery of artillery and one per battalion of infantry.

8. North of Little and Kuhn all infantry battalions to move in approach formation.

9. All field trains to be assembled in present bivouacs. These and all troops and trains not covered above to be disposed of through administrative orders.

10. Command of division and brigade sectors to be taken over at midnight 5-6 June.

Third Requirement:

12th Div,
PINEY CREEK,
5 June 19, 12:00 noon.

FIELD ORDERS
No 1

Maps: Gettysburg-Antietam Map, 1:21120.

Operations Map No 1. (Same as No 13 issued with situation, with brigade boundary and line of departure as indicated below, drawn in.)

1. The 2d Corps has broken through the enemy's first and second strongly fortified positions north of SILVER RUN and through OAKGROVE S. H. It is now in front of the hostile third position, which runs through WHITEHALL.

The 2d Corps attacks tomorrow, 6 June, to capture the high ground north of the WESTERN MARYLAND R. R. near GULDENS, cutting the YORK PIKE and threatening the enemy's lines of retreat towards the north.

The 9th Div attacks on our right in the direction of GULDENS.

The 11th Div attacks on our left towards LAWRENCE—hill 657, covering our left flank.

2. The 12th Div enters the line tonight, relieving the 10th Div (less artillery and small infantry covering detachments), and attacks at 5:00 AM tomorrow to penetrate the enemy's third position, and to capture GRANITE HILL and the high ground north of the WESTERN MARYLAND R. R. near that hill. It will assist the early advance of the 9th Div by attacking the GRAWMER ridge from the west.

Zone of action: as shown on map herewith.

Line of departure: as shown on map herewith.

Line: Orchard 500 yards east of RJ 592—CR 613—thence front line 12th Div. To be drawn in on map issued with situation.

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3. (a) The 26th Brig, reinforced by Co A 1st Light Tank Bn (less 1 plat) and Co B 2d Hv Tank Bn (less 2 plats) will attack on the left of the 12th Div to penetrate the enemy's third position between CUSTER SAP and WILSON SAP (both inclusive) and will continue its drive to capture GRANITE HILL and the high ground north of the WESTERN MARYLAND R. R. near that hill. After passing the BONNEAUVILLE—SQUARE CORNER road it will maintain touch with the 9th Div on its right. The light tanks will be utilized to facilitate the advance after breaking through the hostile fortified zone.

Zone of action:

Western boundary: western boundary 12th Div (shown on map herewith).

Eastern boundary: GIDD—RJ 575—BLAIR (all inclusive)—RJ 587W—CUSTER SAP (both exclusive)—orchard 1000 yards north of ST. LUKE'S CHURCH (exclusive)—thence eastern boundary 12th Div (shown on map herewith).

(b) The 25th Brig (less 1 regt) reinforced by 1 plat Co B 2d Hv Tank Bn will attack with 2 battalions in line. Its left will penetrate MEADE TR. and SHERMAN TR. covering the right flank of the 26th Brig.

On its right it will attack HOOKER TR. from the west, taking SHERMAN SWITCH in flank, and will send a company supported by auxiliary weapons south of the ALLOWAY CREEK ravine to attack the GRAWMER ridge from the west, gaining contact with the 9th Div. It will keep touch with the 26th Brig by a connecting group of 2 plats inf with 1 sec MG's advancing along the brigade boundary.

After the attacks of the 26th Brig and 9th Div have passed BONNEAUVILLE—SQUARE CORNER road, the 25th Brig will be assembled in the Red positions east of CUSTER SAP and north of RJ 567 in division reserve.

Zone of action:

Western boundary: eastern boundary 26th Brig as far as the orchards 1000 yards north of ST. LUKE'S CHURCH.

Eastern boundary: eastern boundary 12th Div (as shown on map herewith) as far as the orchards 1000 yards south of ST. LUKE'S CHURCH.

(c) The attack of the 26th Brig will be supported by the 12th FA Brig, reinforced by the 1st Bn 28th LA and the 1st Bn 30th HvA.

The attack of the 25th Brig will be supported by the 10th FA Brig (less 1st Bn 28th LA and 1st Bn 30th HvA.)

The attack in the zone of the 12th Div north and west of the ravine of ALLOWAY CREEK will be covered by rolling barrage advancing in 100 yard lifts to include SHERMAN and GRANT TRENCHES. Thereafter the progress of the division will be covered by successive concentrations of supporting and attached artillery.

The CG 12th FA Brig will designate accompanying guns and infantry batteries to be attached to infantry units of the 26th Brig as follows: 1 plat to each assault bn; 1 btry to each regt.

From 5:00 to 6:30 AM 155 mm howitzers supporting the division will fire on the enemy's fortified positions, lifting north of GRANT TR. at 6:30 AM.

Artillery fire will not approach closer than 150 yards to division boundaries except on HOOKER TR. where it may stand until 6:15 AM.*

*These must be the result of agreement with commanding general, 9th Division.

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For forward movement of 12th FA Brig see Artillery Annex herewith.

Minimum ranges of corps and army artillery at hours stated shown on map herewith. No gas will be used. There will be no preliminary artillery preparation.

(d) The 34th MG Bn will support the attack of the 25th Brig by direct and indirect fire from the woods east of 575, on SHERMAN SWITCH, HOOKER TR. and the ravines south of HOOKER TR. It will cease firing by 6:00 AM. It will then be assembled near 575 and await further orders.*

(e) One flight 10th Obsn Sq will observe for the 12th Div artillery. See air service annex.

(f) Tanks now in the woods east of GIDD will move to their attack positions between 2:00 AM and 3:00 AM tomorrow, during which time the normal artillery and machine gun fire will be increased to cover their movements. See tank annex.

(g) 2 plats 12th Engrs will report to the CO Co A 1st Light Tank Bn at GIDD to assist in getting light tanks over enemy's fortified zone. 1 co 12th Engrs will report to the CG 12th FA Brig at CR 555 to assist in the forward movement of that brigade.

(h) 93d Inf in woods south of SHOEMAKER from midnight June 5-6.

(x) Rate of advance 100 yards in 4 minutes to the enemy's fortified position; then 100 yards in 5 minutes to include GRANT TR.; thereafter at the direction of CG 26th Brig.

4. (a) See Administrative Orders No. —.
(b) Station for slightly wounded at OAK GROVE S. H.

5. (a) See plan of signal communications.
(b) Axis of signal communications.
12th Div: KINGSDALE—SHOEMAKER—WHITEHALL—BONNEAUVILLE—GRANITE HILL STATION.
26th Brig: 555—592—WISE—BONNEAUVILLE—GRANITE HILL STATION.
25th Brig: same as 12th Div to WHITEHALL.
(c) Command posts:
2d Corps: KINGSDALE.
12th Div: GIDD after midnight 5-6 June.
26th Brig: RJ 555 after 10:00 PM 5 June.
25th Brig: Woods east of RJ 575 after 10:00 PM, 5 June.

A,
Maj Gen.

Copies to:

1 CG
2 C of S
3-5 G1
6-8 G2
9-11 G3
11 Adj
12 Surg
13 Insp
13 OO
15 CWO
16 Div Sig O
17 CG 25th Brig
18 CG 26th Brig
19 CG 12th FA Brig
20 CG 10th FA Brig
21 CO 34th MG Bn
22 CO Tns and MP
23 CO 12th Engrs
24 CO 10th Obsn Sq
25 CO Co A 1st Light Tank Bn
26 CO Co B 2d Hv Tank Bn
27 CG 2d Corps
28 CG 9th Div
29 CG 10th Div
30 CG 11th Div
31 J of O
32-40 Spare

*These must be the result of agreement with commanding general, 9th Division.

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(F) ATTACK AFTER A PASSAGE OF LINES

MAJOR H. J. BREES,
Cavalry

Maps: Gettysburg-Antietam Map, 1:21120, New Oxford, Hunterstown, Gettysburg and Bonneauville Sheets.

Situation:

This discussion is a continuation of Chapter V (E-1), Passage of Lines in Battle (page 553).

The attack was launched as scheduled. The 2d Corps (on the right of the 1st) was held up and made little progress. The 1st Corps (1st, 5th and 3d Divisions) succeeded in breaking through the enemy's third position, as did the 3d Corps (left of 1st Corps).

The opposition encountered was stiffer than had been anticipated. By 3:00 PM situation reports received at corps headquarters (1st Corps) showed that advanced elements of the armies had reached the general line Berlin Junction—New Oxford—Western Maryland Railroad—Little Conewago Creek—crossroads 520—448W—crossroads 594—Woodside S. H.—Plainview—Chestnut Hill. Elements along streams were stopped, but others were advancing slowly.

At the same hour airplane reports showed heavy movements of trains to the north on the Harrisburg Road and the Carlisle and Baltimore Turnpike, as well as troop movements on practically all roads leading to the north and northeast.

At 4:00 PM, the commanding general, 5th Division, received the following message from corps headquarters:

> "The enemy has been forced out of his third position except in front of the 2d Corps. All reports received indicate a withdrawal all along the line. The corps will push forward without cessation. You will force a crossing of the Conewago tonight. Without stopping and without waiting for the divisions on your right and left, you will push forward tonight to the Carlisle and Baltimore Turnpike so as to intercept the retreat of the enemy in front of the 2d Corps. You will arrange with the commanding general, 1st Division, for mutual assistance in crossing the Conewago. Speed and an active pursuit are imperative."

At this hour advanced elements of the division have reached the line, southern edge of Newchester—northern

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edge of woods west of Newchester—thence southwest along ridge to northern edge of woods north of crossroads 594—thence along road to Cashman. On the right, the 1st Division extends the line to road junction 493—thence south along the road to crossing of Swift Run at 448W, and along the western bank of Little Conewago Creek. On the left the 3d Division has reached the line of the Beaverdam Creek.

At this hour the division is disposed as follows:

The 9th Brigade is on the right, with two battalions of the 17th Infantry in line, the third battalion being in reserve in the ravine south of the Snyder Farm. The 18th Infantry is northwest of Moritz S. H. The regimental machine gun company and two brigade machine gun companies are with the leading battalions. The 14th Machine Gun Battalion (less two companies) is with the reserve south of Snyder's. The brigade command post is at the farm house west of hill 571 (361.4—755.6). The 1st Battalion, 13th Light Artillery, is in position near the Synder Farm, and the 2d Battalion is just north of the Hunterstown—Brush Run road.

The 10th Brigade has two battalions of the 19th Infantry in line, and one in reserve in the ravine and woods southeast of the Stroudt Farm. The 20th Infantry is in the ravine and woods north of Guldens. Each leading battalion has one machine gun company with it. The 15th Machine Gun Battalion (less one company) is near the Weaver Farm. The brigade command post is at the farm at 358.8—754.7. The 14th Light Artillery is in position south of the Hunterstown—Brush Run road.

The 1st Battalion, 15th Heavy Artillery, is near road junction 552, the 2d Battalion near road junction 586, the 3d Battalion near the Salem Church.

The division machine gun battalion is along the country road at 359.5—754.5.

The division command post is at Guldens.

Required:

The orders issued by the division commander.

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Discussion

The situation as developed during the day has not changed the original mission of the division. The attack order covered a long advance and assigned an objective well forward. This objective is still to be reached and has assumed considerable importance. The original plan was based on a more rapid progress than has been accomplished. Of the three missions assigned in the attack order but one has been accomplished, namely, the piercing of the hostile third position. Speed and celerity are necessary now to accomplish the other missions in time to reap the greatest results from the success attained by piercing the enemy's position. Night, which is near at hand, must not be allowed to retard the forward progress, but on the other hand the advance must be made more rapid, regardless of the difficulties of movement and advancing at night.

In many respects the coming darkness will be an advantage. The first proposition confronting the division commander is the crossing of the Conewago. Darkness will assist materially here. It will probably have a tendency, though, to slow up subsequent advance, and the difficulties are further complicated by the change of direction of advance to the east. Careful leading is going to be necessary, and an advance by the compass.

The success of the attack of the Blue forces has evidently caused the Reds to let go everywhere except in front of the 2d Corps. A rapid advance to the Carlisle and Baltimore Turnpike should cut off many of the Reds on the front of the 2d Corps; however, speed is necessary. The Red withdrawal from their third position is slow and stubborn, evidently to gain time for the main bodies to get clear. There is no doubt that during the night the withdrawal will be rushed. There can be no doubt, either, that the Red covering forces will make a determined stand and will stubbornly oppose the crossing of the Conewago. In other words, this obstacle will be utilized to the fullest extent.

Because of the effort concentrated on its front, or because of more favorable terrain, or for other reasons, the 5th Division has advanced farther than any of the other divisions of the corps. It is called upon for a still greater advance,

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which must be made during the night. The division has a comparatively narrow front and the attack was made with brigades abreast in column of regiments. Of the two, the right brigade has succeeded in pushing a little farther than the left. The day's fighting has been severe and there is no doubt that the leading regiments have suffered considerably and are probably considerably exhausted. There is nothing to indicate, though, that they are unable to go on. However, the effort called for during the night is going to be a strenuous one, and the greatest successes will be attained with fresh troops. The rear regiments in each brigade apparently have done nothing during the day and apparently have not been needed. However, there can be no question but they must be used now. To drive the leading regiments to the point of exhaustion would mean to put practically half of the division out of commission. The work of the night demands a fresh impulse, a new speeding up. The rear regiments are the ones to do it. They should be passed through the leading regiments. The brigade commanders may or may not have planned to change their regiments during the night. In any event the matter would be taken up with the division commander, especially so if one, or even only a portion of one of the rear regiments had been designated as division reserve. Even if such were not the case the brigade commanders would in all probability notify the division commander of any considerable shifting around of troops.

In the present case, however, it appears that the situation demands that the division commander take the necessary steps to cause this relief of regiments. A new impulse is necessary and the change should be directed by the division commander if for no other reason than to invite attention to the urgency of the matter and the need for speed.

Whether the passing through shall be made before crossing the Conewago or afterward is a matter for determination by the division commander, and will depend upon many conditions, including the distance that the relieving units are in rear, the location of crossing places, difficulties of crossing, and similar considerations.

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A study of the map shows a rather peculiar condition in the zone of the division as regards the Conewago. In the zone of the left brigade the stream cuts almost squarely across the front, but as it enters the zone of the right brigade it bends to the northeast and is practically parallel to the axis of advance for about 2000 yards, when it bends abruptly to the south for about 3000 yards, and then makes another loop to the north. The result is a long, narrow ridge on the right of the right brigade running up to the apex formed by the bending of the stream to the south. This ridge can be covered by fire by the enemy from the east, north, and west. In front of the 1st Division, and east of the ridge just mentioned, is the wider ridge running south to where the river makes the bend to the north. This ridge is exposed to the fire of the 1st and 5th Divisions from the west and south. The ridge running northeast from Newchester, while exposed to fire from three directions, nevertheless affords considerable shelter and cover in the woods, small ravines and folds of the ground running down to the stream. In front of the left brigade the ground is a gentle slope to the ridge at Oak Grove S. H., and is open except for the two narrow groves extending nearly to the stream.

There is no doubt that of the three bridges within the zone of the division all will have been destroyed. Such being the case, crossings will have to be forced, by wading or swimming, or by such improvised means as are possible, and a bridgehead rapidly formed, under the protection of which other troops may be crossed and pushed on. The more crossings that can be established the better. It is quite likely that the ridge in the sector of the right brigade will be subjected to a heavy fire during the night, but it is believed that a considerable force can be filtered through in a comparatively short time. The re-entrant made by the stream north of Newchester (362.9—759.6) forms one very likely place for crossing, and has the further advantage that it will tend to clear off the Oak Grove S. H. ridge and thus facilitate the advance of the left brigade. Other likely crossings are found at the two islands, and south of the bridge at crossroads 463, especially if arrangements are made with the 1st Division for enfilade fire on the Husbach

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ridge. A crossing here, too, would speed up the crossing of the 1st Division. In the left brigade, crossings near the two farms seem to offer the most advantages and should be successful. They should also quickly result in forcing the enemy off of the Oak Grove S. H. ridge, if combined with the crossings by the right brigade at the reentrant.

While this discussion is from the viewpoint of the division commander, it is believed that the main lesson to be taught in a situation of this nature is the responsibility and initiative that must be thrown on subordinate commanders. During the attack on and the break-through of a defensive zone the closest co-ordination is necessary. Orders must be exact and detailed. However, as soon as the break-through occurs, a situation arises which must be promptly taken advantage of and relentlessly pursued if the full results are to be reaped. In other words, while the corps must still supervise, direct, co-ordinate and control, each division must push ahead to a large extent regardless of the others. This does not mean a reckless, careless pursuit, but it does mean an energetic one which is quick to perceive and take full advantage of every slip that the enemy makes. The breaking point is frequently near at hand and it may be that a lack of push and initiative will be the one thing that saves a defeat from being a rout.

For similar reasons, within the division much initiative must be left to the brigade commanders. They must be alert, full of initiative, and must seize every opportunity that will be to their advantage. Each should have artillery at his disposal. The division commander must co-ordinate the efforts of the brigades and render each every bit of assistance possible, but he should not destroy the initiative of the brigade commanders by prescribing in detail what each should do. The rapidly changing situation will be such that no man, or set of men, can foresee each contingency that may arise. The man on the ground must have freedom of action so long as he adheres to the general plan.

From the Conewago to the Carlisle and Baltimore Turnpike is a distance of from 2 to 4 miles. Artillery pushed up rapidly would soon take this road under fire. It is more than likely that a stubborn resistance will be put up

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to prevent the crossing of the Conewago, but it is believed that after the crossing is effected the resistance will materially lessen, the next serious opposition being made from the vicinity of Round Hill.

It will be remembered that the attack order assigned one company of engineers to each brigade with orders to be prepared to replace or repair the bridges across the Conewago. Between 4:00 PM, the time of receipt of the message from corps headquarters, and dark it is more than probable that elements will be gradually filtered through to the northern extremity of the ridge. It is also more than probable that such material as the engineers have on hand will be brought up as close to the stream as possible. A considerable amount of material for repairing bridges or for making temporary bridges will be found in Newchester and at the farms in the 10th Brigade zone. However, in order to assure the rapid crossing and advance of the artillery it is believed advisable to attach an engineer company to each light regiment.

A number of crossings can be attempted simultaneously all along the whole front, or a few can be selected at some particular point, troops pushed over to form a bridgehead, and then all other troops crossed at the same places, or additional crossings made. One objection to all crossing at the same place is that in the darkness troops will get badly mixed. In addition, congestion will result and time will be lost.

The division commander decides to force crossings at as many places as possible, leaving the places to be selected and the details to be arranged by brigade commanders; to have the crossings made by the present leading regiments, in the meantime having the rear regiments brought up close and passed through the leading regiments as soon as the leading regiments have secured the northern bank; to arrange with the commanding general, 1st Division, for mutual fire on the Husbach ridge while the Conewago is being crossed west of there.

It is more than probable, because of the late hour, that written messages only would be sent to the brigade com-

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manders, but for convenience the orders are shown here as a formal written field order.

5th Div,
GULDENS, PA.,
13 July 19, 5:00 PM

FIELD ORDERS }
No 6 }

Maps: Gettysburg-Antietam Map, 1:21120, New Oxford Sheet.

1. Our attack today has been successful all along the line except in front of the 2d Corps. The enemy is withdrawing all along the front.
   Our army pursues vigorously.
2. This division will continue its advance to intercept the enemy's retreat on the CARLISLE and BALTIMORE TURNPIKE. The crossing of the CONEWAGO will be forced tonight and an active pursuit pushed throughout the night. The CARLISLE and BALTIMORE TURNPIKE will be reached by daybreak 4 July 19.
   Zone of action: no change.
3. (a) The 9th Brig will cross at dark tonight at crossings to be selected by the brigade commander. It will facilitate the advance of the 10th Brig by forcing the enemy off the OAK GROVE S. H. ridge. The crossing of its right will be assisted by the fire of the 1st Div on the HUSBACH ridge. It will advance without delay to the CARLISLE and BALTIMORE TURNPIKE.
   Zone of action: no change.
   (b) The 10th Brig will cross at dark at crossings to be selected by the brigade commander. It will be assisted by the 9th Brig in driving the enemy off the OAK GROVE S. H. It will advance without delay to the CARLISLE and BALTIMORE TURNPIKE.
   Zone of action: no change.
   (c) The 13th LA will support the advance of the 9th Brig.
   The 14th LA will support the advance of the 10th Brig.
   Guns will be pushed well forward.
   The 15th HvA will support the attack of both brigades. Concentrations will be laid on the HUSBACH ridge, the OAK GROVE S. H. ridge, hill 504, and on the woods east and west thereof until a foothold has been secured on the northern bank of the CONEWAGO. Concentrations will then be placed successively on all roads leading to the north.
   (d) The 13th MG Bn will be advanced at dark to the vicinity of NEWCHESTER. From positions in that vicinity it will assist the crossing of both brigades.
   (e) The 5th Obsn Sq will commence its reconnaissance at daybreak, reporting promptly the position of all troops and all movements of the enemy.
   (f) The advance of the Inf Brigs will be assisted by the engineer companies now attached to those brigades. 1 co will be attached to each LA regt to assure their rapid crossing and advance. The 4th Engrs (less 2 cos) as directed in Adm O No 6.
   (g) The division reserve, to consist of 1 bn from the 17th Inf and 1 bn from the 19th Inf, will be assembled in the vicinity of CR 594 as soon as a foothold is obtained on the northern bank of the CONEWAGO and await further orders.
   (x) (1) The present rear regiments in each brigade will be moved forward at dark. They will pass through the leading regiments and continue the advance as soon as a foot-

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hold is secured on the northern bank of the CONEWAGO.
(2) The advance must be pushed with the utmost vigor during the night.
(3) Advance will be made without regard to divisions on the right and left.
(4) Contact with adjoining divisions will be assured by suitable connecting groups.

4. SSW: CR 530.
For other details see Adm O No 6.

5. (a) Plan of signal communications: no change.
(b) Axes of signal communications: no change.
(c) Command posts:
Div: no change.
9th Brig: farm at 362.3—757.6 after 9:00 PM, 3 July 19.
10th Brig: RUPP FARM after 9:00 PM, 3 July 19.

A,
Maj Gen.

Copies to:

Div Staff
CG 9th Brig
CG 10th Brig
CG 5th FA Brig
CO 13th MG Bn
CO 5th F Sig Bn
CO 5th Obsn Sq
CG 1st Div
CG 3d Div
CG 1st Corps
CO 5th Engrs

(G) A HOLDING ATTACK—A DIVISION AS PART OF A CORPS

LIEUTENANT COLONEL C. M. BUNDEL,
Field Artillery

The tactical principles and decisions involved in the execution of a holding attack will be illustrated and discussed by assuming a concrete case.

General Situation:

Maps: General Map, Gettysburg-Antietam, 1″=10 miles.
Gettysburg-Antietam Map, 1:21120.

South Mountain forms the boundary between two hos- states, Reds east, and Blues, west. War has recently been declared and the better prepared Blues have invaded Red territory and occupied Gettysburg and Frederick, each with one corps.

The Reds are concentrating at Washington and Baltimore.

Red divisions are known to have only 10,000 infantry and two regiments of light artillery.

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Special Situation (Blue):

The 1st Blue Corps, consisting of the 1st, 2d and 3d Divisions, with Baltimore as an objective, marched through Gettysburg and bivouacked on the night of 1-2 August, in the vicinity of Two Taverns, Barlow and Harney.

The weather has been foggy for the past two days.

During the night of 1-2 August, information was received that a Red force, not exceeding two divisions, had detrained at Westminster, marched northwest and camped between Pleasant Grove S. H. and Mt. Pleasant S. H. The march of the corps was resumed on the morning of 2 August, the 1st Division in one column on the Baltimore Turnpike, the 2d Division via the Harney—Washington S. H.—Galt road. The 3d Division, at Barlow, was to follow the 2d.

The corps cavalry, one regiment, was sent out to cover the front, Sells Station—Littlestown—Galt.

The 1st Division had the 1st Infantry, 2d Light Artillery (less combat train), 1st Squadron, 5th Cavalry, and the 4th Ambulance Company in the advance guard.

At 9:00 AM, General A, commanding the 1st Division, while at Germantown, received telephonic orders from corps headquarters at Gettysburg to the following effect:

> The Red force of two divisions has taken up a position from hill 724, through Mt. Pleasant S. H. and Georgetown to Black S. H.
>
> The corps will attack, enveloping the Red left.
>
> The 1st Division, keeping north of the Harney—Kingsdale road, is to attack the position from hill 724 (inclusive), to Georgetown (inclusive), and hold the Reds to that position.
>
> The 2d Division is to make the envelopment from the vicinity of Galt, and attacks in the direction Black S. H.—road junction 712.
>
> The 3d Division (corp reserve) is to move to Longville and await orders.
>
> The corps artillery is to support the enveloping attack.
>
> The corps cavalry is to move southeast against the Red left and line of communication.
>
> Both attacking divisions are to cross the Northern Central Railroad at 1:30 PM.

At 9:00 AM, the head of the advance guard of the 1st Division is approaching Gidd.

Estimate of the Situation

Mission

To make the holding attack against the Red position from hill 724 to Georgetown (both inclusive).

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The Enemy

The whole Red force consists of two divisions occupying about four miles of front. The Reds evidently intend to put up a defensive fight against superior numbers. They do not know yet where the main blow will fall, so will probably hold out a large part of their force as reserve.

The front assigned to General A is about three-fourths of the Red position, hence he may reasonably expect to be opposed by about one division, the remainder of the Red position being held by one brigade, with a brigade as reserve.

The position held by the Reds is a strong one, on terrain overlooking the country over which the 1st Division will have to pass in making its attack.

The Reds have had little chance to entrench, but will have several hours more before the Blue attack can be launched.

Unless the Reds are occupying the extreme ends of the ridges in their position, cover for the assaulting troops will be afforded by the ravine that runs from Georgetown past the Pump Station. It does not seem probable that they will occupy these ridge ends in force, as the field of fire would be limited by the low ridge about 1000 yards in front. It is probable that they will hold them with machine guns, the main line of resistance being farther back. If this line were on the ridge ends it would be exposed to view from the west, and in case of a reverse the troops occupying it would be forced to retire up hill over an open, exposed slope. Hence the main line of resistance may be looked for near the high ground, about where the small ravines end.

Our Own Forces

General A has only his own division for the attack. He can of course, count on no direct assistance from the 2d Division, since that has its own task. However, the envelopment by the 2d Division should very quickly relieve any unusual resistance on General A's front.

General A is to make the holding attack, and under ordinary circumstances he is not expected actually to carry the position by the force of his attack. The envelopment by the

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2d Division is to be the blow by which the Reds' position will be taken.

However, his attack must be in earnest, or the Reds, quickly discovering that it lacks strength, may withdraw troops to meet the envelopment on their left.

PLANS OF ACTION

1. To put one brigade in the assaulting line, the other in reserve.
2. To put both brigades in the assaulting line, holding out a small division reserve.

PLAN 1

Advantages

Places the whole attacking wave under one commander. Gives a larger reserve with which to meet or make counter-attacks or flanking movements. Enables him to start the attack sooner.

Disadvantages

The front of the division zone (about 3 miles) is much too wide for one brigade. The difficulties of control are too great and the assaulting line is too thin. A large reserve is hardly necessary in this case. The Reds will probably be too busy attempting to stop the enveloping attack, to launch counter-attacks of any size against the holding attack. As the hour of attack is announced by the corps commander, General A must wait until that time before starting his attack.

PLAN 2

Advantages

Covers the entire front with sufficient strength for a holding attack. Places practically all of the division in the attack. Does not hold out an unnecessarily large force as a reserve. Makes the blow of the division much harder than in Plan 1.

Disadvantages

Splits the control of the assaulting wave between two commanders.

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DECISION

To place both brigades in the attack, holding out a small reserve.

General A's next task to determine how he will get his division deployed, and how he will use the various elements.

The advance guard, consisting of one infantry regiment, one artillery regiment, one squadron of cavalry and one horse-drawn ambulance company, is now passing Gidd. The length of this advance guard, including the normal distances between elements, is about 3½ miles, so the tail is just east of Two Taverns, while the head of the main body has not started.

It is reasonable to assume that the remainder of the brigade from which the advance guard infantry was taken, is scheduled to lead the main body, so it appears best to direct that brigade to continue its march on the Baltimore Turnpike.

To save time and prevent congestion on the roads, as well as to get it in its proper place for attack, the other brigade can be sent over the Two Taverns—549—B. D. Snyder—D. Spangler—Shoemaker road. To Shoemaker the distance is about 4 miles. The length of a brigade is about 4½ miles, hence the tail of the brigade can reach Shoemaker in 3½ hours, the time that it takes to march 8½ miles.

The Red position should be divided into objectives for the brigades, with an easily distinguishable feature marking the division. The Littlestown—Silver Run road makes an excellent boundary line. It is about in the center of the position and cannot be mistaken.

The 1st Division objective is about 5000 yards wide. Each brigade will therefore have to cover 2500 yards. This will, of course, necessitate employing all four regiments in line, each covering about 1250 yards. This means using two battalions in the assaulting line and keeping one in reserve. This is apparently on over-extension of the line, but is permissible in a holding attack.

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Paragraph 172, *Field Service Regulations*, gives the following principles governing a holding attack:

> "This, as the name implies, is for the purpose of holding the enemy to his position by offensive action in one part of the field while the decisive blow in the nature of an assault or of an enveloping or a turning movement is struck in another quarter. The governing idea of the holding attack is to make it energetic enough to deceive the enemy, in order that he may use as many of his troops as possible in resisting it, even drawing upon his reserves for such purpose. Early development of the maximum volume of rifle and artillery fire is therefore essential, and for that reason the deployment is on extended lines. Supports and reserves are reduced to the minimum that will be needed to replace losses, secure the flanks, and strengthen those parts of the line against which the enemy might act most aggressively. Holding attacks differ from delaying actions in that the guiding principle in the former is offense and in the latter defense. The holding force may be called upon to push the attack to the point of an assault, and in the end will join in the advance on the enemy's position when the decisive attack has succeeded. Care must be taken that the holding attack does not, because of promising conditions in its front, make a premature assault on the enemy's line and be defeated before the decisive blow can be struck in another part of the field. There is danger, also, in prematurely pushing this attack so far that its weakness or its intentions may be disclosed to the enemy and give him the opportunity to defeat the entire force in detail."

As seen by the above paragraph the great extension and the small reserves decided upon are justified in a holding attack.

To prevent the premature launching of the holding attack the corps commander has directed that the actual assault shall begin at 1:30 PM. For this reason General A must see that his brigades attack simultaneously.

The 2d Division has about four miles to march to reach the vicinity of Washington S. H. and Galt. It can use two roads, one through Lambert, the other through Longville and then across country to Galt. With a brigade on each road it will take the tail of each brigade about four hours to reach Galt and vicinity, or about the same length of time that it will take the 1st Division to reach the vicinity of Oakgrove S. H. Hence these two divisions will be ready for the attack at about the same time.

General A must give his brigades a line from which to move to the attack when they receive his order to do so. There is some slight cover for the 1st Brigade behind hill 652, in the railroad cuts and the outskirts of Littlestown. The ridge that runs southwest from the Pump Station af-

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fords good cover for the 2d Brigade. The brigades should be ordered not to advance beyond this line until the hour given.

Of course, both brigades will be exposed to view during the development and movement into position, but this can not be avoided. They will doubtless come under artillery fire, but will neutralize its effect by taking up suitable formations.

The 1st Brigade will reach its position before the 2d. It is therefore proper for the commander of the 1st Brigade to delay his approach march so as to time the crossing of the exposed ground with the similar movement of the 2d Brigade.

The 2d Light Artillery should support the attack of the 1st Brigade and the 1st Light Artillery that of the 2d Brigade, while the 3d Heavy Artillery supports both brigades.

If possible, both light regiments should be placed far enough forward to reach well back onto the high ground, in order to fire on the hostile artillery as well as on the main Red position and the flat ridges in front of it.

The country in front of the right of the Red position is very unfavorable for artillery. It is open and almost flat, and any position south of Tollgate would be entirely exposed.

While the artillery must expect to take losses in action, the placing of batteries in exposed positions will promptly result in their being silenced by the hostile artillery, with the consequent loss to the infantry of artillery support. It is a maxim that "A battery seen is a battery lost." However, it should not be understood that artillery never occupies positions in the open. If the occasion demands, they take up exposed positions without hesitation.

The ridge near Tollgate offers almost the only cover in this area. From this place the range to the extreme right of the Red position is about 4700 yards. While this range is not excessive for 75 mm. guns, it is greater than that usually selected for artillery in the opening stages of the battle. The position can be reached by following, under cover, the wooded streams to the north.

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The ridge that runs north from Oakgrove S. H. affords a good position for the 1st Light Artillery, with a range of about 3000 yards. The approaches to this position are quite exposed, but batteries could probably move individually under cover, by following the wooded streams and the small folds of the ground.

The heavy artillery has a good, centrally located position in the vicinity of Ash Grove S. H. and Kuhn, with a maximum range to the Red position of less than 6000 yards.

The approach march and the deployment should be covered by artillery fire, if possible, hence the artillery should be given orders to be prepared to fire as soon as it is in position.

A rolling barrage over a front of 6000 yards is manifestly out of the question with but one artillery brigade. Hence the work of the artillery, in the first stages of the attack, will be to silence the hostile artillery and to fire on favorable targets that are seen. Later, as the attack is pushed home, it will fire on the hostile infantry.

Looking into the situation of the two infantry brigades, it is seen that each has a front of about 2500 yards to cover. The division order calls for the two regiments of each brigade to attack abreast, which means that each regiment will have 1300 yards of front.

To cover 1300 yards of front it will be necessary for each regiment to deploy two battalions in the assaulting line.

The division commander has taken one battalion from the 1st Brigade as division reserve. Each brigade commander will doubtless take a battalion as brigade reserve. Hence in the 1st Brigade each regiment will have only two battalions, and these both deployed in the assaulting line. In the 2d Brigade one of the regiments has but two battalions.

This is a very shallow attack formation and is permissible only in a holding attack. To use such a deployment in the main attack would doubtless result in having the attack promptly stopped if it were opposed by a force at all its equal in strength. Once the attack was stopped because of lack of driving force, the enemy would be given an excellent opportunity for launching a counter-attack.

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The holding attack, as its name implies, is only to hold the enemy to his position and, if possible, to deceive him into believing that it is being made in force, and into rushing reinforcements to this part of his line. The shallow deployment is therefore permissible.

In this situation the first orders of General A would probably be dictated. He must be prompt in giving orders to the advance guard as to how far it shall advance, and to the 2d Brigade and the 3d Heavy Artillery to get them started without loss of time.

His formal field order would be about as follows and would be prepared while his troops were moving up and deploying:

1st Div,
GERMANTOWN, PA.,
2 Aug 19, 10:30 AM.

FIELD ORDERS
No —

Maps: Gettysburg-Antietam Map, 1:21120.

1. A Red force consisting of two divisions has taken up a defensive position on the high ground southeast of LITTLESTOWN and KINGSDALE.
   Our corps attacks, enveloping the Red left.
2. (a) This division, with brigades abreast, will attack the Red position from hill 724 (inclusive) to GEORGETOWN (inclusive).
   (b) Boundary between brigades:
   The LITTLESTOWN—SILVER RUN road, 1st Brig on the left, 2d Brig on the right.
   (c) Line of departure.
   Hill 601—hill 607—PUMP STATION—NORTHERN CENTRAL R. R. Assaulting elements will remain west of the line of departure until 1:30 PM.
   (d) Time of attack:
   1:30 PM.
3. (a) (1) The 2d LA will support the 1st Brig from a position in the vicinity of TOLLGATE.
   (2) The 1st LA, will follow the 2d Brig and support it from a position in the vicinity of hills 662—642.
   (3) The 3d HvA will follow the 1st Brig and will support both brigades from a position in the vicinity of ASH GROVE S. H.
   The artillery will be prepared to fire promptly on hostile artillery and favorable targets and to cover adjacent zones.
   (b) The 1st Brig, with regiments abreast, will attack the Red position from hill 724 (inclusive) to the LITTLESTOWN—SILVER RUN road (exclusive). It will protect its left by a strong combat group and will maintain contact with the 2d Brig.
   (c) The 2d Brig, moving via the B. D. SNYDER—SHOEMAKER—OAK GROVE S. H. road, will, with regiments abreast, attack the Red position from the LITTLESTOWN—SILVER RUN road (inclusive) to GEORGETOWN (inclusive). It will remain north of the GEORGETOWN—629 road and will maintain contact with the 2d Div by means of strong combat groups.

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(d) The 3d Bn 2d Inf and the 1st MG Bn will constitute the division reserve and will await orders in ravine north of ASH GROVE S. H.
(e) The 10th Obsn Sq will constantly observe the Red position and the LITTLESTOWN—SILVER RUN road. It will report half hourly the position of front line troooops.
(f) The 1st Sq 5th Cav will move to the vicinity of LEFEVRE and cover the left flank.
(g) The 1st Engrs will await orders at E. B. SWARTZ.
(h) The 1st F Sig Bn will maintain communications between these headquarters and the two infantry brigades, the artillery, the division reserve and the cavalry.

4 (a) The Am and Sn Tns are released. All other trains will await orders at TWO TAVERNS.
(b) Station for slightly wounded: RJ 555.
(c) Ammunition distribution stations:
1st Brig and 2d LA: GIDD.
2d Brig: D. SPANGLER.
1st LA and 3d HvA: S. B. FOX.

5. (a) Plan of signal communications: no change.
(b) Axes of signal communications:
1st Div: LITTLESTOWN—SILVER RUN road.
1st Brig: same as 1st Div.
2d Brig: GEORGETOWN—OAK GROVE S. H.—KUHN road.
(c) Command posts:
1st Div: RJ 527 (near GIDD).
1st Brig: TOLLGATE.
2d Brig: KUHN.
(d) Forward communication center:
LITTLESTOWN.

A,
Maj Gen.

Copies to:

CG 1st Brig
CG 2d Brig
CG 1st FA Brig
CG 1st Corps
Div Staff
CO 1st Engrs
CO 1st MG Bn
CO 1st Sq 5th Cav
CO 3d Bn 1st Inf
CO 10th Obsn Sq
CO Tns.

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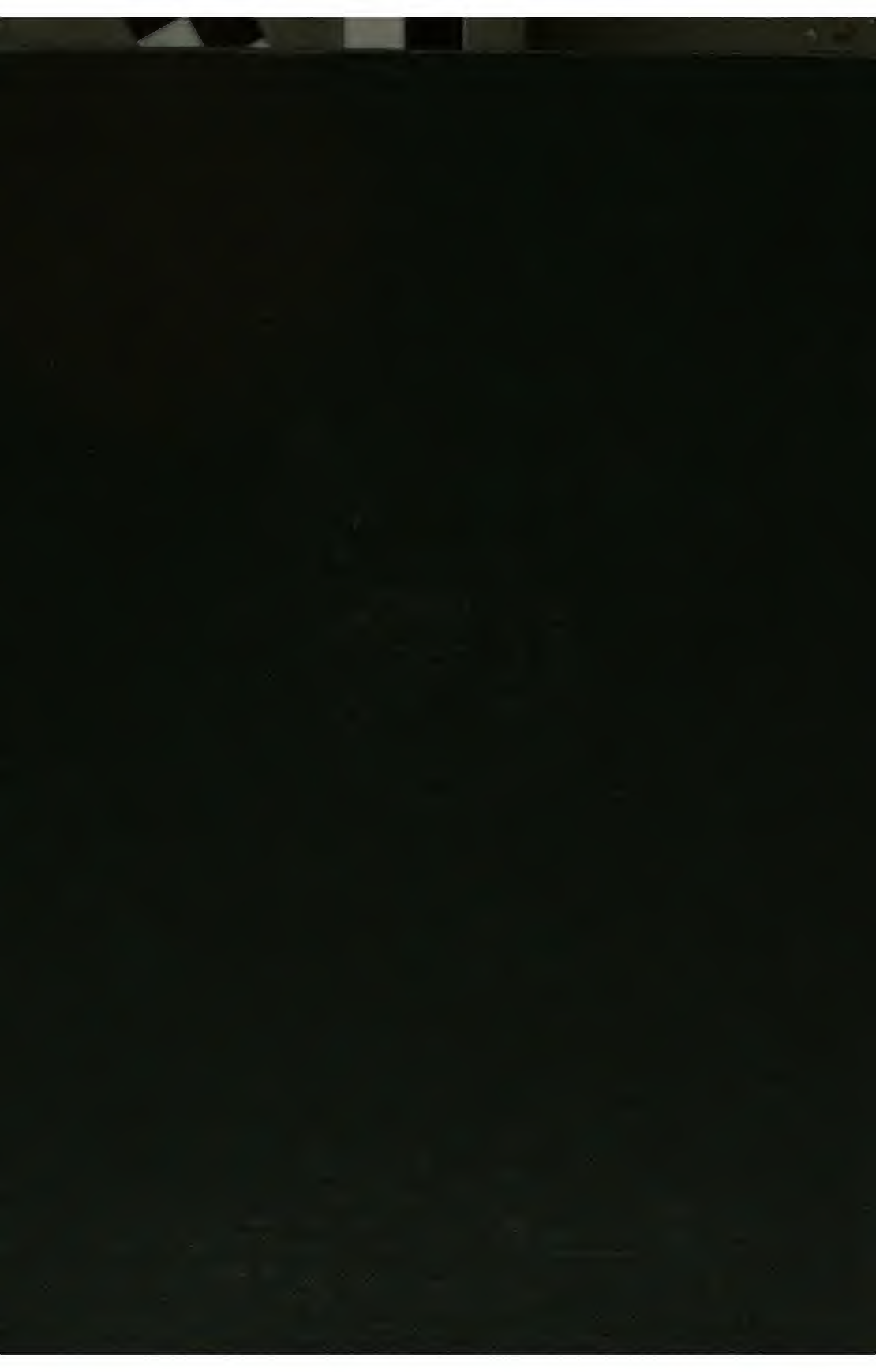
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